CACTUS AND SUCCULENT JOURNAL

VOL. XXXI JAN.-FEB., 1959 NO. 1

FIG. 1. A group of Ferocactus grown by Marjorie Shields in New Zealand

CACTUS AND SUCCULENT JOURNAL

Published and owned by the Cactus and Succulent Society of America, Inc., 132 W. Union St., Pasadena, Calif. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America $4.00 per year; foreign $4.00 by money order. Mail application to SCOTT HASELTON, Editor, 132 West Union Street, Pasadena 1, California. *Editorial Staff:* THE ENTIRE SOCIETY. Entered as second Class Matter at Pasadena, Calif., under act of March 3, 1879. Published bi-monthly. We reserve the right to accept or reject advertising or articles sent to this JOURNAL.

VOL. XXXI JANUARY-FEBRUARY, 1959 (Price 75¢) No. 1

CONTENTS

An Open Letter to All Affiliate Clubs	Edward S. Taylor	2
Experiences in Using the U.C. Soil Mix for Container Grown Succulent Plants	J. W. Dodson	3
Cotyledon ladysmithiensis	H. M. Butterfield	6
Desert Flowers Under Glass, Part 10	Marjorie Shields	7
A Collecting Trip to West Texas and Points Southeast	Wm. H. Davis	11
The New York Cactus and Succulent Society	Joseph Emma	16
Euphorbias in Oregon	Mildred Wellbaum	17
New Succulent Cultivars, 1. *Crassula* 'Jade Necklace'	Myron Kimnach	18
Opuntia clavarioides	J. C. Buttner	20
From Canada	W. Rover	21
Further Notes on Echeverias, Part V	Eric Walther	22
Questions and Answers	Harry Johnson	26
Epiphyllums	H. Fechser	27
Spotlight on Round Robins	Gladys H. Panis	28
Activities of the New Mexico Cactus and Succulent Society		29
Cereusly Speaking	John E. C. Rodgers	30
Spine Chats	Ladislaus Cutak	31

AN OPEN LETTER TO ALL AFFILIATE CLUBS OF THE CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

At this time of year many people make resolutions and I hope that each club and its members have remembered to make the resolution to attend the Biennial Convention of this Society, to be held in St. Louis some time during the first week in July of this year.

As an Affiliate your club should also be considering who its Delegates will be. The Rules for Affiliates, Page 2, state that each club is entitled to two regular and two alternates for the first 50 members and four Delegates and four alternates for the club of more than 50 members. Remember, I said "each club is entitled to" this, not required. You don't have to send Delegates, but if you have members going, why not let them read the rules for Affiliates your club has, and then make them your Delegates?

These Delegates will represent your club at a Delegates' Meeting on the first day of the Convention, so they should be fully instructed in all the things your club wants done. At the last Convention the Delegates asked: (1) That the next Convention be held in St. Louis; this was done. (2) That the Board of Directors of the Society investigate the possibility of a Convention in Mexico City in 1961; this is, and has been done. You will hear more about this at the St. Louis Convention. (3) That a new set of Affiliate Rules be drawn up; every Affiliate club has received these. There was also some discussion regarding a reduction in "Cactus Journal" rates for the members of Affiliates, and, although the Delegates did not ask for this after hearing all the facts, some slight reduction has been arranged for, as follows: Any Affiliate group where there are 50 or more subscribing members, shall be allowed a rate reduction of $1.00 per subscriber; if all subscriptions are written up in one list and sent in with the subscription fees as outlined on Page 2 of your Rules for Affiliates.

We hope every Affiliate will have Delegates present at the St. Louis Convention to make suggestions about the next one, will it be in Mexico City? Or do you have a better suggestion? Remember any Affiliate can act as Host to a Biennial Convention, all you have to do is read your Rules for Affiliates and the New Amendment to the Society By-Laws, on page 184 of the Nov.-Dec. issue of the Cactus and Succulent Journal, and then speak up at the Delegates' Meeting. Remember any bona-fide invitation should be in writing from your club.

Each Affiliate should also try and have candidates for the office of King and Queen present at the Convention. Starting this year, these two will play a much more active part. The election will be held the first evening at the Convention Session right after Dinner, and the King and Queen will sit with the President of the Cactus and Succulent Society of America, Inc., at all Convention Sessions for the rest of the Convention. They will truly be "your Cactus and Succulent King and Queen".

Another thing to remember is, that every member of the Society and their family are expected to attend this Biennial Convention in St. Louis, for this Convention is for them, only the Delegates' Meeting is reserved for accredited Delegates. There will be plenty going on in the rest of the Convention to more than fill their time with enjoyment and knowledge.

All Affiliated Clubs will receive further information on programs and how to obtain reservations at a later date. The names of their Delegates will be asked for then.

The usual notice regarding payment of Affiliate dues should be received by your club soon, we hope you do not delay payment for you will want your club to be in good standing by Convention time.

EDWARD S. TAYLOR
Affiliate Corresponding Secretary

* * *

OREGON CACTUS SOCIETY

Officers for 1959: President, Don Cluster; Vice-President, Harold Miller; Secretary, Mrs. Marian Minden; Treasurer, Mrs. Martha Ford. Address, 3837 NE. 19 Ave., Portland, Ore.

FIG. 2. Members of the I.S.I. prepare the U.C. Type Soil Mix for growing plants to be offered under I.S.I. distribution. Left to right: George Quesada, Al. Irving, Myron Kimnach, Tom Juul, Jay Dodson

Experiences in Using the U. C. Soil Mix for Container Grown Succulent Plants

By J. W. DODSON

For a long time the writer had been dissatisfied with the various soil mixes that he had used, but it was not until becoming associated with the International Succulent Institute, that the need for a decided change of soil mixture and plant culture became a real necessity. Previous to this time our experiences in growing succulents, to any extent, had been confined to a limited group of plants, mainly the genera *Haworthia* and *Echeveria.* The failures and losses of this group of plants over the years were many, and the cause was usually determined as being due to a "bad batch of soil".

While the plant distribution through I.S.I. does not approach that of a commercial nursery, (as the number of species as well as the number of plants of each species grown, at any one time, is limited), it became necessary to grow a great many different kinds of plants in such a way that they would be both free of insects, parasites and pathogens and be sturdy and strong so as to withstand shipping and to survive the widely divergent conditions and climate, under which they will be grown by the persons receiving them. It was necessary also to grow certain of the rarer species of succulents for a considerable length of time until they could mature to the point where cuttings might be obtained, and further, to grow many species from seed or unrooted cuttings.

A type of soil was therefore required, that would fulfill the following requirements. The original cost must be reasonable. We should be able to use the same soil many times over and to sterilize it without changing its composition. It should be uniform and be adaptable for use in either pots, flats or outside plantings. It should be readily obtainable and easy to prepare and handle. It should be compatable to a large and widely divergent group of succulent plants. It should be excellent for seed growing and cuttings should show a high percentage of "takes". It should be able to be stored for indefinite periods. It should be relatively sterile, pathogen and insect free. It should produce sturdy young plants able to withstand handling and shipping. It should require little attention except for fertilizing and watering. It should be free of excess salts and minerals. It should retain moisture well and yet provide excellent drainage. It should provide a growing medium for mature plants for a long period of time without re-potting. And

finally, all of the various families of plants should be watered, fertilized and generally handled in the same manner, without using different techniques for each species.

The soil formula and methods of handling outlined by Kenneth Baker in "The U. C. System for Producing Healthy Container Grown Plants",* was studied and the problem of an acceptable soil was further discussed with a number of persons, including commercial growers. We found that some commercial growers are now using a variation of this U. C. Soil Mix with excellent results. After considering all of the various mixes and methods of handling, and after seeing the experiments with succulent plants grown in the U. C. Soil Mix by the University of California Botanical Gardens at Berkeley, it appeared that the U. C. Soil Mix "B" using fertilizers I (B), with some slight variation, would best fulfill our requirements. It would then only be necessary to develop a systematic method of handling this soil to fit our special requirements and growing conditions. This procedure is still in the process of being worked out, but results so far are very gratifying. The soil mix we are using follows closely the U. C. Soil Mix B, with the Fertilizer I (B) formula of:

BASIC (B) MIX

75% of 30 mesh (or screen) sand, and 25% Canadian Peat Moss. To each cubic foot (9 gallons) of this mix is added 6 oz. of a combination of 6 minerals in the following proportions:

3½% Potassium Nitrate
2½% Potassium Sulfate
23½% Single Superphosphate
42½% Dolomite Lime
14% Calcium Carbonate Lime
14% Gypsum

SAND: It is important to use 30 mesh or 30 screen sand, which is a very fine grade of sand, where at least 75% to 85% of the particles will exactly fit through a 30 mesh screen. The sand should be clean (washed sand), relatively low in silt or clay, and contain no organic matter or salts. Uneven sand with a combination of large and small particles will give the effect of a cement-like mixture which will supply a poor drainage and growing medium, while silt or clay will retain too much moisture or pack too solidly. The local supply of sand that we used has the trade name "Del Monte" and is produced by Del Monte Properties here. Its principal commercial use is for glass making, but is also used by industry for such purposes as filling cigarette trays or fire buckets in theatres or buildings. A similar sand should be available from a local Nursery Supply House, Garden Center, Janitor Supply House, or a Building Material Supply House. A sack of such sand is about 1 cu. ft. in volume, will weigh about 100 lbs., and contain about 9 gallons of sand.

POTASSIUM NITRATE: This will supply the Potassium, Magnesium and some Calcium requirements of the plants.

POTASSIUM SULFATE: This provides a slowly available form of Potassium as well as the Sulfate fraction required.

SINGLE SUPERPHOSPHATE: Superphosphate is sold in double and triple strength. The single strength adds more bulk to the minerals and is therefore, more evenly distributed in the mix. This supplies phosphorus, is slowly soluble, and does not seem to contribute to salinity.

DOLOMITE LIME: The powdered form used is rather difficult to secure as we are more familiar with the common, white, pebble size, used for chicken grits. This supplies magnesium and some calcium, but its main purpose is to neutralize the high acid reaction of Peat Moss.

CALCIUM CARBONATE LIME: Sometimes known as oyster shell lime. This supplies available calcium and also helps to neutralize the acid.

GYPSUM: Does little to neutralize acid but does furnish some calcium without affecting the soil reaction. Its purpose here is to reduce the danger from an alkaline condition, especially where water may be high in sodium content, or artificially softened.

Most of these minerals will remain in an adequate supply in the soil mix over a period of time, even though supporting plant growth. Therefore, re-potting is not necessary for a considerable period, and the soil may be used over and over again a number of times.

As there seems to be little chemical change in this soil mix, it may be steamed, baked, or chemically sterilized, may be stored indefinitely without deteriorating, and is available for immediate use. This then, is a basic mix that we will call a (B) Mix. We have used this basic (B) Mix with excellent and satisfactory results for unrooted plants, cuttings, for starting leaves and for growing seed. At the end of two or three months of plant growth in this mixture, however, it will no longer be satisfactory for further plant growth. It will not prove satisfactory for use in re-potting or for use when transplanting rooted plants, as one vital element, Nitrogen, has been purposely omitted. This is because it is impossible to provide an indefinite period of high fertility, so it is best to provide a limited time of fertility and to rely upon subsequent fertilizing procedures to extend the useful life of

*Available from Abbey Garden Press, 132 W. Union St., Pasadena, Calif. $1.50 postpaid.

the soil mix. Some knowledge of Nitrogen and its properties will help to understand why the addition of such a fertilizer must be handled carefully.

HOOF AND HORN MEAL: One of the best sources of nitrogen is Hoof and Horn Meal (H.&H.). This is composed of ground up animal hoofs and horns and should be available at most Garden Supply Centers. Some other forms such as Fish Emulsion and Bone Meal have been used by growers with good results. Nitrogen in this organic form, however, is not directly available to plants but must first be broken down by the action of bacteria. Usually it is first converted into ammonium and this, then, is further changed to nitrogen by nitrifying bacteria. As nitrogen is readily used by growing plants and further dissipated, it must be considered a fertilizer. The breakdown of Hoof and Horn Meal begins immediately upon being added to the soil. *Therefore, it cannot be added to the soil mix that is to be stored.* During the first week or two after adding H.&H. to the soil mix, it is probably converted into an unusable form of ammonium. While we have not found that succulent plants are particularly susceptible to injury from ammonium, our past losses of seedlings, unrooted and dormant plants, that were planted in high nitrogen containing composts such as leaf mold or manure or where inorganic fertilizers were used, may have been due to excess accumulations of ammonium. Therefore, the U. C. Basic Soil Mix which contains little or no nitrogen, can be readily controlled, by the time of addition, and by the measured amounts of added Hoof and Horn Meal. After about two weeks the ammonium is converted into available nitrogen, readily usable by plants. *Therefore, it is important to use the basic soil mix to which Hoof and Horn Meal has been added, within two weeks after adding this ingredient.* Hoof and Horn Meal may be added to the (B) Mix for immediate use where it becomes a fertilized mix ("B.F.") Mix. It may also be applied as a top dressing to potted plants or to flats containing cuttings or to seedlings, about three months after planting. H.&H. Meal is further desirable as it forms a continuing low supply of Nitrogen over a period of time rather than an immediate or varying supply. We have found that about one teaspoon of H.&H. Meal to one gallon of U. C. Basic Mix will supply sufficient Nitrogen for from two to three months during warm weather and from three to five months during cool weather, as it breaks down slowly under cool conditions. For potted plants, about ½ teaspoon to a 3 inch pot, sprinkled on the top of the soil and watered in, will produce good results and will not burn either the plant or roots. Amounts in excess of the above quantity seem to do little good and probably cause damage, so it is best to fertilize often if necessary, rather than to use larger amounts at any one time.

In general, our experience has been such that we are converting all of our previously potted plants to this "B.F." Mix formula. All new cuttings, seed, transplants and repotting is being done in this soil mix.

The first roots of seedlings or the tender stem roots of cuttings pass easily and directly through this soil, so that the soil does not fall off when plants are removed from the growing medium. The roots are not forced to the sides of the container, thus a mass of roots are formed throughout the soil, rather than the plant growing with a ball of soil in the center. *Echeveria* heads that were cut from the stem, formed roots within ten days, thus we have produced better plants, faster, easier and with greater success than with some other mixes.

Some of the ephiphytic cacti such as *Rhipsalis, Epiphyllum* and other thin leaved succulents, seem susceptible to the excess accumulation of ammonium, salts and saline conditions often experienced with other mixes. We have observed no such injury when using mix "B" or "B.F." *Haworthias* and *Aloes* are somewhat susceptible to root corrosion and a form of black stem rot. This seems to be eliminated by using this mix.

As we know at all times with more certainty just what is in this soil and what we may expect from it, we do not need to be as nearly concerned over fungi and pathogens as if we had used leaf mold. Excess salts and salinity are not present as when manure and composts are used. Injurious pathogens, nematode and other insects are not present in this soil to the extent as when loam and untreated soils are used.

This soil mix and the method of culture is still in the experimental stage and much has yet to be learned. For example; it appears to be easily contaminated with unwanted organisms, if extreme care in handling is not used, and if sanitary practices are not observed. Some fungi and molds grow quickly and readily in the mix if not controlled. The soil may dry out rapidly unless watering is on a rather frequent and controlled basis. A consistent and accurate fertilizing program is essential with this type of culture.

We do feel, however, that the use of the U. C. Soil Mix has done more for our plants, added to the ease of culture, and that we have had fewer losses than with any previous soil mix that we have used.

EDITOR'S NOTE: Dr. Dodson will continue the series with "Experiences in propagating and the cultural methods used for various species of succulent plants" in the next issue.

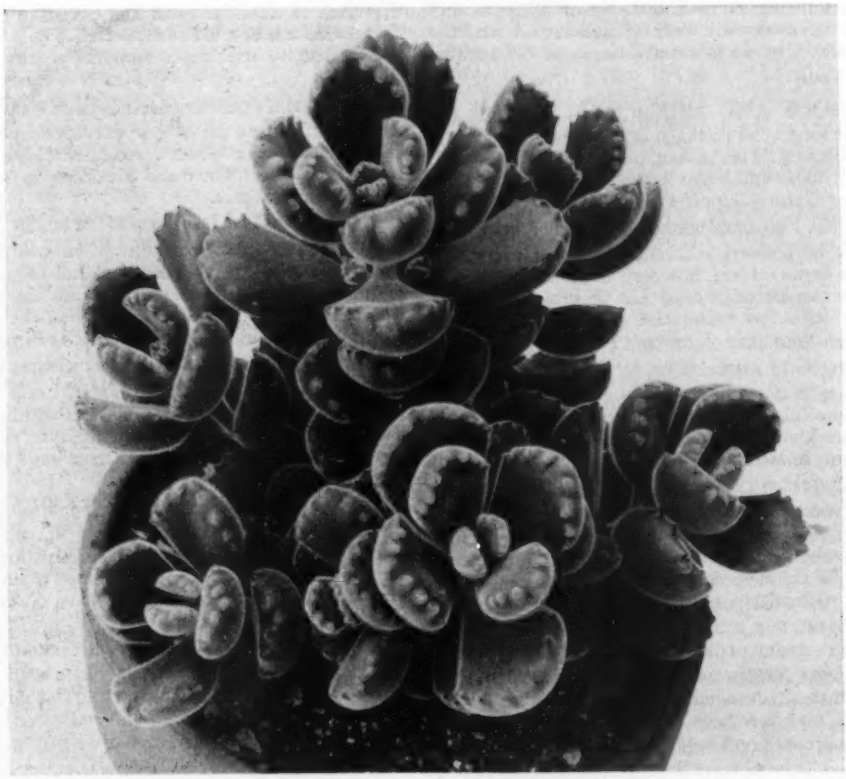

FIG. 3. *Cotyledon ladysmithiensis* in U.C. Botanical Garden. Approx. x0.8; will reach many times this size. Photo by author.

COTYLEDON LADYSMITHIENSIS (Schonl.) Poelln. vel. aff.

By H. M. BUTTERFIELD

The succulent fancier interested in the best new introductions is bound to like this fine species. While there may still be some question about the genus or botanical name, actual culture seems to prove that it has the same cultural requirements as some of the other Cotyledons. I understand that the form brought to the Botanical Garden of the University of California, Berkeley, differs somewhat from the form introduced into Holland. The picture here shown clearly indicates the pretty beading on the margins of the leaves in the form just referred to at the University of California.

Like many Cotyledons, this species seems to thrive best with plenty of aeration in the greenhouse or outside where weather conditions are favorable. The plant has confined in the greenhouse in winter. This same trouble has appeared on other Cotyledons at times. But the branches will usually send out new growth in time. The leaves tend to be a soft green in the greenhouse but outside take on a purplish cast which enhances the beauty of the plant. Like other Cotyledons, this species will tolerate a little winter cold but it needs protection. It has done very well outside in Berkeley, California, where summers are cool and winters are usually above freezing. This species should do well wherever Cotyledons are known to thrive. Cuttings are easily rooted during the growing season. Tip cuttings are suggested. Treat like other cotyledons in general.

Berkeley, Calif.

DESERT FLOWERS UNDER GLASS

The story of my experiences and delight in growing and flowering Cacti and Succulents in a small glasshouse in Christchurch, New Zealand

By MARJORIE E. SHIELDS

CHAPTER 10

We by-passed the Ferocacti group last time as there were flower buds on two of them and while waiting for them to develop we saw the Euphorbias. Now we will return to see what we can find interesting about these magnificently spined plants. The name "ferocious cactus" is most descriptive, for see how large and strong are the spines! Many are hooked. They are usually large solitary plants with deep ribs. The wonderful array of spines forms a natural protection from the desert suns of Mexico, Texas, California, and Arizona, where the rainfall is low and the sun very hot. Known as the "Barrels of the Desert", on account of their shape, the plants eventually grow very large, some over 6 ft. high. Fortunately they are fairly slow growing, so there is no need yet to worry unduly about their future size. In the meantime they make a showy group on the bench and do not need over large pots as their root system is surprisingly small for the size of the plant. Given a good, porous, not too rich soil, moderate watering in summer, dry in winter, and a sunny position on the bench, they will repay with flowers in due course.

It has taken eight years from seed for the first buds to appear. Some will take much longer, but with such wonderful spines and colourful new growth—ruby red and resembling sea anemones—the lack of flowers matters not at all. Just look at those spines! Feel the texture of these strong hooked walking-stick centrals on F. peninsulae. Strange isn't it, they feel so soft and velvety! Is it a protection, I wonder, like the velvet skin which envelops and nourishes the antlers of a deer during their rapid growth? It is much thicker on the curve of the spine than elsewhere, and it is the centrals only that are so protected. Even so, they could cause a horrible wound, so these with the hooked spines must be treated with respect. Of the plants here, F. peninsulae has the longest spines, followed closely by F. coloratus, F. viscainensis and F. covillei. Shorter spines like fish-hooks add to the ferocity of F. townsendianus and F. wislizeni. More curved than hooked are those that adorn F. nobilis. These all have red spines and are very brilliant, some more so than others.

F. stainesii and F. pringlei have straight, dagger-like red spines, but E. melocactiformis has long tortoise-shell ones, while brown daggers appear on F. robusta. Broad spined F. latispinus and its yellow spined variety, flavispina are different again, both having one short, broad, flat horn pointing downwards, brownish on the former and cream on the variety. These spines are all centrals and are surrounded by clusters of radials; some even having coarse cream hairs as well, which add to their interest and attractiveness. A younger plant, F. macrodiscus looks most intriguing with its four wide, flat, cream centrals lying almost flat against its body, a definite contrast from the others.

Two outstanding ones are F. echidne var. auriespina, meaning "snake-like and golden", and F. glaucescens "covered with whitish bloom", both with much daintier, long cream clusters of gracefully curved spines with centrals very little longer than the radials, the latter having the finer of the two with paler colouring. These are both beautiful plants and F. echidne has produced a flower! Not a very conspicuous one certainly, but still a flower. A lemon yellow gathered up frill, so tightly wedged in amongst the spines it cannot open its petals. Being the same colour as the spines it could easily have been unnoticed. The buds on F. latispina have once again failed to open. Buds appeared last year but did not mature; it is most disappointing for the same thing to happen again this year.

There are some strangers in the group. They are Echinocacti also from Mexico, Texas and California; too small yet to flower with the exception of E. horizonthalonius. This is a wide, flat plant with flattened ribs. A large quantity of thick cream wool fills the crown, through which the woolly buds push their way. It does look gay! The brilliant pink flower sitting in the centre of the dull greenish-grey body looks wonderful. The tube is thickly covered with cream wool also, and the many petalled blossom measures three inches across when fully expanded. The slightly incurved frilly petals are margined with deeper pink to match the mid rib, and yellow stamens fill the vivid red throat, the same bright red also colouring the filaments. Well above the stamens the pale pink style rises, breaking into orange-red stigma lobes. This flower has been well worth waiting for. I wonder if all Echinocacti flowers are as beautiful? It will be a long time, if ever, before that question can be answered, unless the large 30 year old E. grusonii at the doorway decides to oblige. This plant was grown from seed here in Christchurch, but I am not over optimistic about it flowering for

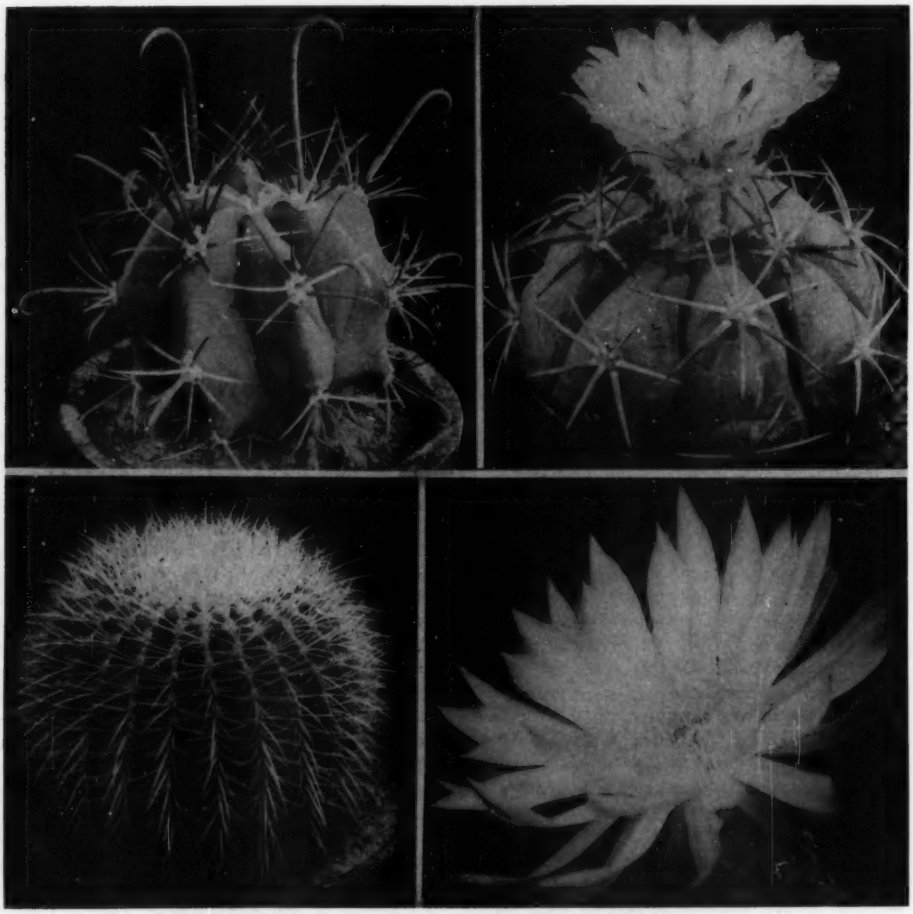

FIG. 4. Ferocactus peninsulae. Echinocactus horizonthalonius, Echinocactus grusonii, Echinopsis leucantha. Photos left to right.

it is generally believed the "Golden Barrel" will not show its golden blossoms in this country.

But your eyes are wandering further along the bench beyond the Euphorbias, to where there are some spectacular trumpet-like flowers. These are the Echinopsis and although most of the plants are very spiny they are not as ferocious as the Ferocacti. The name tells us they are "hedgehogs". They often produce many offsets, soon forming large clumps. Usually they are free flowering, the majority with large white blooms. These are not desert plants, their natural habitat being South America east of the Andes. If they have a fairly heavy rich soil, protection from full sun and plenty of water during the growing season, beautiful flowers will result. Some flower more freely if placed outside during the summer. Early summer finds them in bloom and what a beautiful sight with seven of them all flowering at once. Five are white flowered but each is quite different.

Top-shaped E. turbinata from Argentina has a long hairy tube and three rows of broad petals to form the lovely flower. E. eyriesii is found in southern Brazil and Uruguay and has an even longer and more slender tube and the flower has sharply pointed petals. White flowered E. leucantha from western Argentina has finely pointed petals more cream than white; the light chocolate ray petals form a perfect frame for

FIG. 5. Opposite page: Top left, Echinopsis kratochviliana; top right, E. hahatacantha; center left, E. luzna x multiplex; center right, E. rhodotrichia; bottom left, E. zuccarinii; bottom right, E. calochlora.

this lovely flower. The other two are quite different and so much smaller it is hard to believe they really belong to this group. E. kratochviliana from Argentina looks just like a lovely water lily with its small (for an Echinopsis) cream incurved blossoms; the tube is short and thickly covered with dark brown wool—the buds look just like tiny, shaggy brown bears. This one appeals to me more than any of the others. It is very beautiful. Also from the Argentine, E. hamatocantha with hooked spines, has a little longer tube covered thickly with brown wool. The spikey back petals of this dainty flower are faintly lavender pink, while the wider inner cream ones come to blunt points and are slightly incurved. These two plants make a wonderful pair and although their flowers are so much smaller this adds rather than detracts from their beauty.

Two others flowering in early summer are both pink. E. multiplex from southern Brazil needs no description as surely everyone has it. Even so it is one of the most beautiful of all the Echinopsis. This plant is labelled "true species", whereas most of the plants in collections are hybrids. Strange to say the blooms are not nearly so good as on the hybrid I have in the garden. It is really disappointing as it has not as much colour nor as many petals. But here is one that is not a disappointment. It also is a hybrid, a cross between the yellow Echinopsis and E. multiplex. As you see mine is not yellow, but pink with a deeper pink mid rib and a pale yellow throat. The whole flower being suffused with yellow makes it salmon pink instead of rose pink like E. multiplex. It is a beautiful blossom, but wouldn't it be wonderful to see the yellow one? I hope some day soon I will.

December, mid summer, brings the rest of them into bloom. Here is "rosy haired" E. rhodotricha, from Paraguay and N. E. Argentina, with a long pinkish brown tube sprinkled with light brown and white hairs; the flower is exquisite with the palest of pink incurved petals, white stamens and stigma lobes. E. zuccarinii, found in Argentina and southern Brazil, is also known as E. tubiflora. The flower has recurved white petals flushed with pink, the flush being more pronounced on the back petals, so maybe my plant is variety graessneriana.

Here is an unnamed one with a glorious bloom and outstanding plant form. The flower is pure white with wide pointed petals, a pale green tube with fine light brown hairs filling the scales. The dark green body has 11 ribs with perfectly round areoles filled with short cream wool. No two seem to have the same number of spines, ranging anywhere from 7 to 15, with in most cases a longer central. The spines are golden yellow shading to dark brown at the areoles and with a dark brown tip and are about two centimeters in length.

E. calochlora "beautifully pale green" hails from Brazil and is a symphony in yellow. The plant body is yellowish green, the spines, the flower tube and the buds yellow. When open the wide spreading cream flowers show white stamens, yellow style and green stigma lobes. Next comes E. huottii from Chile, a little different from the others with long narrow white petals, white stamens, a green style breaking into many stigma lobes. Do you notice what long central spines it is producing?

---

*Adromischus and Sedum next issue.

MORE POWER TO I.S.I.

The work of the International Succulent Institute has given a tremendous boost to such collectors as myself, who has been growing succulents for some twenty years. My collection was almost wholly built up from plants and seeds acquired from dealers, past and present. But of necessity their offerings reflect the ease with which a particular plant can be propagated or they are tailored to the wants and capabilities of the less advanced collector. So the principal reward of the succulentophile became the raising of the specially large and well-grown plants of the more usual kinds.

But I remember when I saw my first *Alluandia* species at the Jardin des Plantes in Paris about ten years ago. I wanted such a plant badly. In the same way, when looking at Jacobsen's pictures of Adenium, Adenia, Pachypodium and such choice items, the heart of the true collector is fired with desire. Since, understandingly enough, dealers would have little reason to stock such rather unprepossessing looking plants, I thought I would never possess them. But this is exactly the need which I.S.I. is filling so admirably. And due to the fact that the members are doing all the labelling and packing themselves, to save expenses, the contributors to the I.S.I. are largely helping to finance collectors in Africa. Apart from giving us the thrill of having rare plants, this activity may actually help to preserve rare species which the march of civilization might otherwise destroy. So, more power to I.S.I.

Otto Laporte
Ann Arbor, Michigan

THE MR. AND MRS. CACTUS CLUB

The first anniversary of the club at Tampa Bay area was held at the Leisure House, Tampa Electric Co., on Dale Mabry Hwy. Mr. and Mrs. Ted Kuczynski showed colored slides of cacti and Mrs. John Cronin identified and gave a talk on each species. Mrs. Joanne Griffin gave an interesting talk on the Gasteria species. Mr. E. R. Carter talked on Rhipsalis.

206 South Street
Tampa 3, Florida

W. C. ANDREWS

The Cactus and Succulent Society of California, Inc. reports the death of Mr. Andrews on December 30. He was treasurer of the Society and one of the most active members for many years. He will be remembered by his many friends in the National Society when he sponsored the exhibit at the World's Fair at Treasure Island.

A COLLECTING TRIP TO WEST TEXAS AND POINTS SOUTHEAST

WM. H. DAVIS

My wife and I and the '53 Olds left Kerrville on April 19, and followed the same route we followed in the spring of last year except a few deviations. We set the alarm clock for 3:30 a.m. so that we could be a few miles on our way before the sun came up. A nice, crisp cool morning with stars shining with the temperature in the 60s, we shoved off. We drove on Highway 27 to Junction and then we drove on Highway 90 until the sun came up or it was daylight. Then we started looking for cactus. We were about 150 miles from Kerrville when it got daylight enough for us to see, and that threw us about 10 miles from Sonora, Texas. We stopped and searched the hills for cactus. We had been told that some *Corypantha neo-mexicana* were growing along the highway. We found a few after walking about 3 miles up and down the highway. We gave up and returned to the car, and drove about a mile further on and turned right on a dirt road. We hadn't gone far when my wife let out a scream and nearly caused me to ditch the car. She had seen a lot of *Coryphantha neo-mexicana* growing on a hill. We collected a cluster of *Echinocereus enneacanthus*. We searched the hillside for some other kinds but to no avail. Turning the car around, we headed back to the highway with our spirits high because I didn't have but a few specimens of the *Coryphantha neo-mexicana* and certainly not enough to offer for sale. We had some coffee and ate a sandwich and scanned the country from the car. Driving along the highway looking for plants from a moving car is hard on the eyes but we did it.

Our next stop was the ranch where we stopped last year and collected some *Opuntia imbricata* var. *argentea* and talked to the owners of the ranch for a while and headed back to the highway again. We were enjoying life so much we nearly passed a dirt road that was nearly hidden with brush. Taking this road we drove about five miles and stopped where there were no houses and jumped another fence. Here we

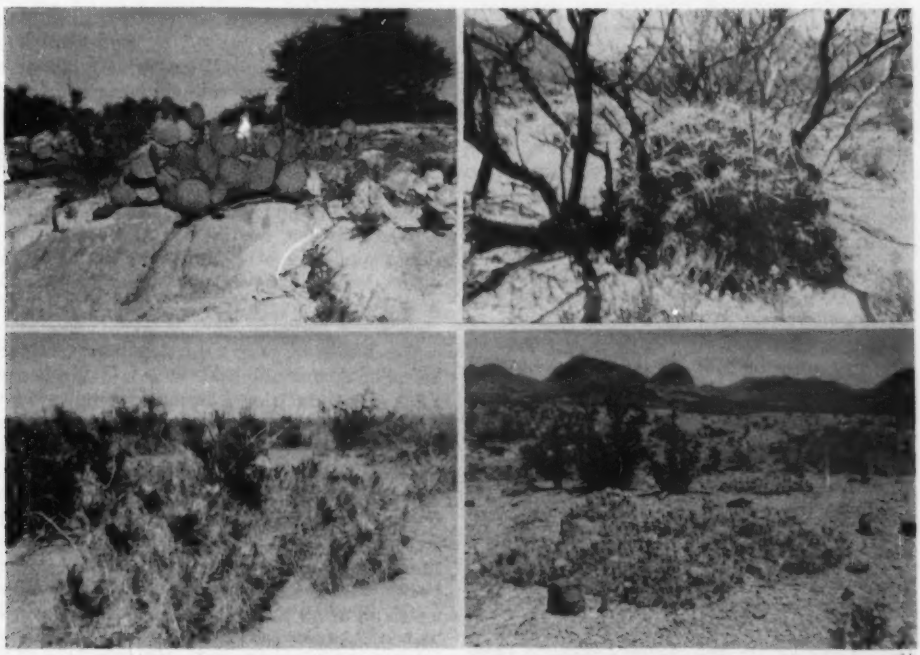

FIG. 6. Top left, *Opuntia strigil* in limestone hillside; top right, *Echinocereus stramineus* growing in a thicket; bottom left, *Echinocereus dubius* in natural habitat; bottom right, *Opuntia grahamii* in its habitat.

found some nice plants of *Echinocereus conoideus* both single and clusters. We gathered some plants and put them in a big cardboard box and prepared them for shipment back to Kerrville.

Our next stop was about nine miles from Ozona where we took some pictures of *Opuntia strigil* in its natural habitat. We collected two or three plants filling another big bix. We also collected some more clusters of *Echinocereus enneacanthus,* the long spined variety.

We ate lunch at the Pecos Valley Roadside park, and rested until 2:00 p.m. Here we collected some nice large specimens of *Echinocereus roetteri, Coryphantha neo-mexicana, Echinocereus lloydii, E. ctenoides,* and *Echinocactus horizonthalonius.* This is the farthest north we have ever heard of the *Echinocereus ctenoides* growing as it is found down around Eagle Pass, Texas about 300 miles to the south. We collected along the highway and 12 miles out of Fort Stockton we collected some seeds of *Yucca thompsoniana.* Most of the plants we collected between Pecos Valley and Fort Stockton were the same we had collected at the Pecos Valley with the exception of *Echinocereus ctenoides.*

Our next stop was 3 miles from Fort Stockton where we collected some cuttings of *Opuntia tenuispina,* plants of *Echinocereus conoideus,* and some *Mammillaria meiacantha.* Our first mistake on the trip was here. We drove off and left our shovel laying beside the road and didn't notice it until we were nearly 200 miles away. We started to go back and look for it but we didn't.

We spent the night at the beautiful Balmorhea State Park. Here they have an underground river that surfaces in the State Park and the temperature is 72 degrees and free swimming. We went swimming and ate supper and went to bed. It's the only time we rented a cabin on the entire trip. We were so tired when we went to bed we went right to sleep. We were on our way again by 5:00 the next morning. We drove about four miles and turned left on a graded road and stopped, where we saw some nice *Ferocactus uncinatus.* Getting out of the car we looked at the ground and there to our suprise were hundreds of *Mammillaria denudata* growing in the limestone rock. Some clusters of them were six inches across. We collected several plants putting them in a box we brought for the small plants and climbed the hillside for some large plants of *Ferocactus uncinatus.* About ten feet from where the *M. denudata* were growing the geology of the soil changed abruptly from white to red lava rock. This is the kind of soil the *F. uncinatus* were growing in. It was so startling that it hurt your eyes. We didn't find another *M. denudata* outside the white limey area, but the *F. uncinatus* were just as plentiful a little further up the hill. Gathering an assortment of these in various sizes and packing them in boxes for shipment. Then when we had put these in the car we decided to look on the other side of the hill and there to our suprise were just as many *Hamatocactua hamatocanthus* as there were *M. denudata* and *F. uncinatus.* My wife went back to the car for another box while I climbed higher up the hill. About 100 feet higher I found some nice plants of *Neolloydia texensis,* and some *Echinocereus viridiflorus.* By this time my wife was back with the box and I went back to help her dig up the *H. hamatocanthus.* We filled the box with some very nice plants in various sizes. Then we went up the hill to collect some of the *texensis* and *E. viridiflorus.*

By this time we were hungry enough to eat a bear, so we fixed breakfast on the limestone rock on our gasoline stove. We had coffee, bacon and eggs. It always tastes better when it is cooked out but that was the best food I've ever eaten. We searched the hills down the road but the same cactus were found and no more were taken at this stop. We turned around and went back to the highway. After driving about 3 miles further we stopped to talk to a range rider about collecting cactus on his property. He liked it so much that he even wanted to show us where some other kinds grew. We went with him over rough terrain. He was riding a horse and could make better time than we did but we made it though. He was laughing when he told us to stop, that he said we would have to finish on foot. We got the shovels and a box to put the plants in and started walking. We walked about a mile and there on the side of the hill were single specimens of *Echinocereus conoideus* in bloom. We collected about 15 or 20 of these and to our suprise there at our feet were a lot of *Ariocarpus fissuratus* and *Mammillaria microcarpa.* While we were collecting some of these he yelled down the hillside at us and said here's a Sweet Potato Cactus. I dropped everything and went tearing out up there and there it was with big buds. I was so excited that I nearly fell off the bluff the plant was growing on. Oh, yes, if anybody doesn't know what a Sweet Potato Cactus is, well it is *Penicereus greggii.* We all three started digging about two feet away from the plant because we didn't know how big the potato was. It was a big one all right, it must weigh all of 30 pounds. We were fully satisfied with the range rider and thanked him. He said anytime we wanted some more just come and get them that we knew where to get them. We

managed to get our loot back to the car with several stops. When we were back to the highway we rested at a Road Side Park and drank some water from a well. Here we filled our water jugs. It was a beautiful park with huge plants of *Yucca elata* in bloom with creamy white stalks of flowers. I looked around for some last year's seeds and picked up about a quart.

Our next stop was about 10 miles farther on where we collected some *Opuntia macrocentra* in bloom. Here we collected some more *Echinocactus horizonthalonius* and an *Opuntia* with single spines from the arioles that were all of six inches long. That's all the armament the plant had and there were confined to the top of the plant. The spines were blood red, round and real flexible. So far I haven't been able to classify it.

At the next stop we shipped the boxes by Railway Freight back to Kerrville. This was at Van Horn. I had a long chat with the station agent who said a few years ago there were lots of *Ferocactus wislizeni* until people found out that they were good in making Cactus Candy. He said that winch trucks would go into the hills and bring back huge plants of it and workers would peal it and slice it into little squares no bigger than an inch and cook it with a large amount of syrup until it was clear. Then they would let it dry and sell it for 25¢ a box which contained about a dozen pieces. Now there's no more cactus that make good candy and the people have left. He said mostly Mexicans made the candy. Boy, they really took every cactus from that area. We searched nearly two hours for any trace of *F. wislizeni,* thinking maybe we would find a small one, but no luck. We left Van Horn about two o'clock and headed for El Paso.

We drove slow surveying the hills from the car and didn't notice anything that we didn't have. At about 10 miles out we stopped at a stock pond where we saw some men working. We asked permission to come in and collect a few cactus. After introductions were made they kindly agreed and directed us to where there were a lot of different kinds. We followed a gravel road about 5 miles and stopped. On getting out in an Ocotillo, *Fouquieria splendens* thicket, we saw a huge clump of *Coryphantha macromeris* growing under a bush of Ocotillo. Around it were several other smaller clumps which we collected. A little farther on we found another cluster of a cactus similar to *Escobaria tuberculosa* but the stems were the size of *Mammillaria pottsii* which it resembled. The only difference was that it was blooming out of the top while *M. pottsii* blooms along the side. We collected it and several other smaller clusters. We found several more *Echinocactus horizonthalonius, Echinocereus conoideus, Coryphantha pectinata, Echinomastus intertextus* and *dasyacanthus, Escobaria dasyacantha,* and *Opuntia trichophora.* This was the biggest haul we had so far and I believe for the entire trip in number of species.

About two miles from Sierra Blanco, Texas, we stopped and on a hill we collected some nice plants of *Echinocereus dubius.* This hill was the highest we had been on and we climbed to the top, collecting on the way up and laying them in the trail to be picked up on the way down. On the very top we collected some nice plants of *Ariocarpus fissuratus, Epithelantha micromeris,* and *Echinocereus dasyacanthus.* Here we filled two more boxes of plants. It was getting late and we were tired so we didn't even stop in the city of Sierra Blanco as we had about 60 miles to go before we would get to El Paso.

We did stop at a Cactus and Rock shop about nine miles out of Sierra Blanco. Mrs. Dora Tankersley is the operator and she really has a nice collection of cactus and she ships them as well as sell to the local customers. We made arrangements for trading some Central Texas cactus for some *Lophophora williamsii* of which she has a lot. She also had some *Penicereus greggii* but she traded them to us. We talked about two hours about cactus. She was very nice and a pleasing person to talk to. If any of you want to get in touch with her, the address is Mrs. Dora Tankersley, Box 276, Sierra Blanco, Texas. I'm sure you will be rewarded if you just write to her. We bid Mrs. Tankersley goodbye and headed for our destination. By this time it was dark and we were a long way from El Paso.

Our next stop was at a Road Side Park three miles from El Paso. We put our cots up and cooked supper and went to bed. It was a very nice park a little way off the highway. We had a good night's sleep and were up at daylight the next morning. We ate breakfast and drove into El Paso. Here we looked up Mr. John H. Leasure, 1007 Redford Avenue, who has a place called Cactus Acres. He is a fine man and likes to talk about cactus. He has quite a collection himself. He showed us all the cactus he had and gave us some nice plants. We stayed about four hours and enjoyed every minute of it. We drove around the biggest part of the day in El Paso because we were lost, but we had a good time looking at the beautiful city and its yards. Some of the yards there are the prettiest I've ever seen.

We drove down to the Rio Grande River and looked for some *Opuntia arenaria* but didn't have any luck. I guess we drove about 15 miles searching for cactus right around El Paso but we

didn't find any. Then we started looking for boxes and found some at a grocery store. We asked if we could have them to ship cactus in and he gave all we wanted. He even gave us some that were already broken down so that we could carry them better. We thanked him and bought some groceries from him. The prices were most reasonable and he filled up our ice chest for nothing. He said he didn't want any customer to leave his store empty handed. He asked us all about Kerrville, the size of it and the possibilities of going into business there. We told him he had better get in touch with the Chamber of Commerce at Kerrville. We left and at supper at a cafe on the highway because we were at the end of our West Texas trip. After we at supper we went back to the Road Side Park and spent the night.

The next morning we awoke at daylight and cooked breakfast and headed on the Southeast portion of our trip. We traveled on Highway 90 as far as Van Horn. Then we turned toward Marfa in the Big Bend. We collected on the way from Van Horn to Marfa. About 10 miles out we stopped and collected some *Opuntia grahamii*. Here we also collected a few small plants of *Agave sabra*, and *Agave lechuguilla*. We also got some cuttings of *Fouquieria splendens*. We have always had very good luck rooting these in sand. We filled two boxes here and drove on.

At our next stop, at a Road Side Park at the foot of a lava hill, we collected *Echinocereus viridiflorus* with very beautiful spines and with a circle of blooms around the middle of the plant. We then looked for other species. We found some *Echinomastus intertextus* and a few *Coryphantha pectinata* which were in bloom. Those two species were growing side by side.

We then drove on into Marfa and looked up the Old Line Cactus Co., owned and operated by Mr. and Mrs. Elemsdorf. Mrs. Elemsdorf showed us around the processing plant, the drying tables, the shaker, the packing tables. They also handle the Horned Lizard—*Phrynosoma* sp. and other oddities. They handle some nice species of Texas cacti. We ate lunch with them and talked about an hour after lunch and looked all over Marfa for a sharp pointed shovel like the one we lost, but didn't have any luck. They told us where we could collect some *Echinomastus dasyacanthus* and *E. intertextus* on the way to Presidio. We bid them farewell, and headed out Highway 67 for Presidio. It was about 2:00 p.m. when we left Marfa. It is 63 miles from Marfa to Presidio. The temperature at Marfa was 80 degrees and when we got to Presidio it was 102 in the shade and they said it had been 106 at noon. W stopped several times on the way to Presidio, collecting plants. The plants collected between Marfa and Presidio were; *Mammillaria meiacantha, M. pottsii, Ariocarpus fissuratus, Echinocereus dasyacanthus, E. chloranthus, E. dubius, E. viridiflorus,* a few *Lophophoria williamsii,* a few *Mammillaria wrightii,* and *M. denudata.* We found one crest of *Echinocereus chloranthus* but bruised it when we dug it up and it later rotted. Other plants collected, not cactus, were *Euphorbia antisphilitica, E. eriantha, E. dentata, Jatropha spathulata, Larrea divaricata,* and *Porlieria angustofolia.* The weather was so hot that our car became overheated and we stopped for about two hours to let it cool off and to rest ourselves. We found a shady place and we spread out quilts and took a short nap. It was five o'clock before we started toward Alpine.

We backtracked our trip from Presidio to Marfa and headed for Alpine on Highway 290. It was getting late but we stopped several times collecting. We collected *Echinocereus dasyacanthus, E. dubius, E. viridiflorus,* and *Mammillaria meiacantha.* We spent the night at a Road Side Park. It was about nine o'clock when we arrived at the park; we lit the gasoline lantern, cooked supper, and talked until about eleven o'clock when we went to sleep.

The next morning we were up early heading for Alpine to look up some friends. Before we started looking we drove out on the Fort Davis road, Highway 118 to collect some *Opuntia kleiniae* which was growing about nine miles from Alpine. We collected some and also some *Opuntia trichophora.* Some fairly large plants of *Echinocereus chloranthus* were growing on a hillside in red lava rock. They were beautiful covered with red spines with a circle of blooms about the middle of the plant. We searched the hillside for other species and outside of a few *Echinocereus dasyacanthus,* which we didn't collect, is all we found. We turned the car around and headed back to Alpine and looked up our friend Mr. Gorge Pugh of the Big Bend Cactus Co. Here we purchased some *Mammillaria microcarpa, Epithelantha micromeris, Neolloydia texensis,* and *Echinocereus viridiflorus. We* talked Cactus until about noon, and headed to the Big Bend National Park on Highway 118. Our first stop was about 20 miles from Alpine to get some plants of *Opuntia davisii,* with its dangerous spines. These spines will penetrate leather soles of shoes if they are stepped on, and are very painful to extract. We were very careful not to get "bitten" by these spines. Here we collected another *Opuntia* with round stems with very few spines and joints similar to the *O. grahamii,* some of the joints were spineless. If anyone knows the name of this plant it would be

appreciated if they get in touch with me. So far I haven't been able to identify it and it is not doing so well in its new location. We collected some more *Ariocarpus fissuratus* here, and *Mammillaria meiacantha*. We also collected some *Opuntia schotti*.

Our next stop was about 18 miles further on. Here growing in the ditches of the roadway were some *Opuntia imbricata* var. *argentea* with its purplish red blooms. Over the fence were some large plants of *Echinocactus horizonthalonius*. We collected only three of these because we forgot to ship our boxes in Alpine and boxes of cactus were now stacked to the ceiling of the car and even in the front seat. We just didn't have room for many more plants and we still had some more to collect. The only place left was the top of the car, and that's exactly where we put the rest of them until we arrived at Marathon.

We turned on a gravel road toward the Glass Mountains. It was about nine miles to the foothills of the Glass Mountains. Here we found one nice small plant of *Opuntia tunicata* and some *Mammillaria denudata*. When we had collected some of the stems of the *Opuntia tunicata*, these stems were cuttings as we didn't want the entire plant because it was the only one we found here. Margery Anthony, who made a study of the "Opuntia of the Big Bend Region of Texas", states in her report that it is found in an area about ½ mile square and is very scarce there. We found some nice plants of *Mammillaria pottsii*. Also growing along the road were some large plants of *Opuntia trichophora* which were in bloom. No more plants were taken at the Glass Mountains.

Our next stop was about 30 miles out of the park limits where we collected some clumps of *Echinocereus stramineus*. The spines are very vicious and have to be handled with "kid gloves" to keep the spines from touching you. Of course we managed to collect a few spines but we soon had them out. We also collected some plants of *Opuntia grahamii*, that were in bloom. In fact, both the *E. stramineus* and *O. grahamii* were in bloom, the first with purple blooms and the last with yellow blooms. A striking combination were these two plants when growing side by side. We walked around looking at the wild flowers in full bloom, other than cactus. This hillside was the prettiest we had found on our entire trip. Just a few of the plants in bloom were: *Coldenia greggii, Phlox mesaleuca, Convolvulus hermannioides, Ipomoea lindheimeri, Oenothera triloba*, and several other species of flowers, that I will not try to name. Upon looking up the slope of the mountain were the colors of the rainbow, made by these flowers.

We didn't stop any more until we were in the Big Bend Park. It was so hot that we stopped under some cottonwood trees to let the car cool off and to let us rest. Here we stayed about an hour. On taking several gravel roads to the right and left side of the road, we were looking for the rare *Opuntia pottsii*, but no luck. We then headed for Boquillos Canyon, a distance of about twenty-four miles. We stopped several times and collected some *Opuntia rufida* that were in full bloom. A little further on we collected a nice specimen of *Opuntia spinosibacca* that was also in bloom. This is a new species that was described by Marjory Anthony in January 1956 in the American Midland Naturalist. This plant is most interesting because of its spiny fruits that are dry when mature. The flowers are yellow with a greenish center. We had a total of ten boxes on the car now and still had a long way to go before we could ship them. We spent the night at the canyon and headed out of the park the next morning. On our way to Marathon we stopped several times and just viewed the hills and valleys.

We stopped about ten miles farther on where we searched for another new species and to our surprise we found a cactus that had yellow spines. We were looking for *Echinocereus davisii* which was described in the Cactus and Succulent Journal some time back. The person that found it said it was restricted to an area of about a square acre in this vicinity. This plant fits the description but I've been told that it was just a variety of *Echinocereus chloranthus*. Anyway we collected several of these nice plants. Here we found several plants of *Epithelantha micromeris*. We also collected some small clusters of *Echinocereus stramineus*. We had all we could carry so we didn't stop any more until we reached Marathon. Here we shipped twelve boxes of cactus by rail freight. We had to replenish our supply of boxes because we had a lot more to collect before we got back to Kerrville. We started looking around the store for boxes and we found only two that were serviceable.

We went a short way out on Highway 50 from Marathon to collect some *Coryphantha echinus*. I guess we drove about 12 miles when we stopped at the road side and climbed a fence. There to our surprise were about a dozen *Coryphantha echinus* about the size of a silver dollar. We gathered about six of these fine plants and walked up a hill where we saw a white ball. This ball turned out to be a fine cluster of *Mammillaria lasiacantha*. It was the most beautiful plant collected on the entire trip. We collected quite a few of these and some *Ariocarpus fissuratus* clusters that were growing in the cracks of limestone rocks. We also collected a plant of an *Opuntia* that had snow white spines about as the *macro-*

centra spines. It could be a cross between the *macrocentra* and the *trichophora.* The blooms were creamy white and very fragrant. It is not doing so good in cultivation and I may lose it.

We went back to the car and headed for Highway 90 and didn't stop any more until we arrived at Sanderson, where we filled up the ice box. We were so tired that we rested about two hours and started on the road again. We drove about nine miles out of Sanderson and stopped. Here we found a lot of *Escobaria* sp. This plant may be a variety of the *tuberculosa* but the stems were smaller and much more elongated, the flowers pinker. The plant clustered about the base more than at the top of the plant as does the *tuberculosa.* We also found a few *Mammillaria denudata* which were so few we didn't even attempt to collect. We collected a few *Epithelantha micromeris* that were fairly plentiful. This was another beautiful hill with all the wild flowers blooming. I won't begin to describe them as there were so many different species, but the Rock Verbena, *Verbena ciliata* was the most prevalent. We also collected some small plants of *Yucca thompsoniana.* The older plants had huge bud stalks on them but we were too early for the blooms. We collected a few small clusters of *Echinocereus enneacanthus* and headed for the car.

I let my wife drive because she hadn't driven any on the trip and I watched from the car. We drove along at a snail pace looking on each side of the road. I had my wife stop the car at a likely hill. On the side of the road was one *Ferocactus uncinatus,* that was about a foot high and 4 inches in diameter. It was the largest one I'd seen. Here we found several *Hamatocactus hamatocanthus,* both small and rather large. These were growing with the many small plants of *F. uncinatus.* We also collected some nice clusters of *Echinocereus conoideus* that were in full bloom.

We didn't stop any more until we reached the Pecos River where we collected several plants of *Echinocereus reichenbachii* with long spines. We collected a nice plant of *Opuntia atrispina* that was in full bloom. It is the most beautiful plant we saw on the trip with its jet black spines and its beautiful yellow flowers with green centers covering the top of the pads. We then drove on in to Kerrville, arriving at 6:00 p.m.

THE NEW YORK CACTUS AND SUCCULENT SOCIETY

The year end meeting of the New York Cactus and Succulent Society was held December 14th at the N. Y. Botanical Gardens. As is customary at this meeting the annual report of the Secretary-Treasurer was read, which indicated that the Society has shown a steady growth throughout the year. Prizes were awarded to the winners of the 1958 monthly plant contests with First Prize in the Greenhouse division going to Arthur W. Garrabrant who has been a consistent winner with the very beautiful specimens he grows in his modest greenhouse. First Prize in the Window Sill class was awarded to Evelyn Camelbeek. Now that the Camelbeeks have moved into their new home and are planning to put up a greenhouse we can expect a real contest between these two prize winners. A special prize went to Irving Bernhardt, the younger son of Dr. A. Bernhardt, for his tabletop decoration depicting a scene of the Old West and also for his blackboard drawings of succulents.

Dr. Barad spoke on plant pests and methods of control and followed this with a showing of a selected group of his own plants which included many of the rarer Kalanchoes. Young David Barad manfully held up a Kalanchoe beharensis which was considerably bigger than he was and told the history of this plant from the time it was acquired in a 2-inch pot until it reached its present size. We are very happy to see that many of our members' children are following in their parents' footsteps and are raising plants of their own—we give them every encouragement along these lines since we all feel that a child interested in plants is a healthy and happy child.

The major business of the afternoon was the election of officers for 1959 and the following were elected to office:

Joseph Emma, President
Arthur W. Garrabrant, Vice-President
Mildred Barad, Secretary-Treasurer

Helen Arp and Walter Mansell were reelected to the Board of Directors and the two outgoing officers, Dr. Barad and Dr. Bernhardt, were added to the Board.

The meeting ended with the holiday gift exchange in which some very fine plants and accessories changed hands. It should be mentioned that despite the fact that intense cold and heavy snows blanketed the eastern seaboard and the predicted local snow storm had begun, this meeting was well attended, with members coming from distances of up to 100 miles. Eastern cactophiles are a hardy breed!

As we go into the New Year we pause for a moment to look back upon our accomplishments of the past year. Our membership has grown steadily, we won three First Prizes at the Int'l Flower Show, and thanks to the very favorable publicity we have received in the Journal, the name of the N. Y. Cactus and Succulent Society has been spread around the world judging from the pile of foreign mail that comes in. We have embarked upon a well-planned series of programs for the year ahead and our Flower Show Committee has started its preparations for the 1959 show. Looks like a good year ahead!

JOSEPH EMMA

FROM LOUISIANA

The Cactus and Succulent Study Group of New Orleans conducted a tour of the members' gardens—eight were on display competing for prizes. Anyone interested in this group should write to 7434 Jade St., New Orleans, La.

CHICAGO CACTUS CLUB

Officers for 1959 are: Mrs. Lillian Wilkinson, President; Chas. Anderson, Vice-President; Mrs. Margaret Radden, Secretary; Orlin I. Wahl, Treasurer.

Program for 1959: Jan., Favorite Plants; Feb., Cephalocereus; March, Euphorbias; April, Propagation; May, Soil; June, Grafting; Sept., Plant Market, Parodias; Oct., Dwarf Opuntias; Nov., Zygocactus; Dec., Color Slides.

10226 S. Bell Avenue
Chicago 43, Ill.

EUPHORBIAS IN OREGON

December 17, 1958

It seems like carrying coals to Newcastle for me to presume to write on Euphorbias, when such a delightful article by Marjory Shields has just appeared in the Journal. However I will tell how we raise Euphorbias in Oregon:

Planting: We plant directly in the benches in the glasshouse. The plants do not go outdoors even in summer. It is remarkable what top and root growth we get by this method.

Soil: If we err in our soil mixture it is on the side of too much drainage. We have so much rain here that we must have a soil that dries out rapidly. We use good rich loam, sand and gravel. In the spring and fall we work in Johnson's soil conditioner and Johnson's cactus fertilizer. This seems to take care of the plants' needs.

Water: In the summer months when it is hot we water as often as needed, sometimes four to five times a week. Remember our soil drains rapidly. We often water in the evening, to let the plants get well soaked. Our sun comes up early and hot, especially so through the greenhouse glass, and we do not water in the morning very often as we do not want the water to stand on the plants and burn them. It is easy to check the soil and tell when it is becoming dry. Once a week, every three weeks, we use Plant Chem Salts in the water. Then on the other two weeks, once a week, we use Vit. B_1. We have a glass jar that we fill with the chemical, and this is diluted as it goes on the plants to the right mixture. We water overhead with a hose, and very fine spray. Fortunately we do not have lime in our water as it is spring water. Now I do not presume to imply that Euphorbias do not like lime, for I do not know. But I do know that we have as pure water as is obtainable. We do not water from October to February, for with the winter rains the air is full of moisture, and so the plants are provided for, while dormant.

Shade: We do not spray the top of our greenhouse, but use camouflage netting over the top of the plants at the top of the greenhouse, giving a patterned shade.

Heat: The planting bed has an electric cable set at 40 degrees, although we use forced air heat. But this heat is not turned on until the temperature reaches freezing outside the greenhouse. But the heat cable protects the plants in case of a sudden unexpectedly temperature drop, which we have had.

Pests: So far we have found no pests. We did think we had red spider on a large *E. lactea cristata,* but we believe it was lack of rich soil that made the tiny leaves turn brown, as this condition was cleared up as soon as we tucked rich loam around the plant. No mealies or scale has been in evidence. Twice a year for the benefit of the cactus we use gas bombs. There has been no indication that the Euphorbias object to this.

I believe the diversity of shapes is what intrigues us. We are also becoming more flower conscious, as the various plants bloom. Further, we are able to arrange the plants in a most pleasing way due to the fact that we can have tall ones, medium ones and small ones. Each one fits into its place nicely.

My only quarrel with Euphorbias is that I am not able to identify them. I cannot find anyone who can, (without guessing). I find if you have seeds and plant them, you may get anything from the shape of some male plant to the shape of the female plant—and also some "children" that definitely show both parents' characteristics. Now this is very confusing, and I am tired of that overworked word "hybrid". We have White, Sloan, and Dyer "Succulent Euphorbieae of So. Africa", but the pictures show, for the most part, native growths which do not resemble the plants we grow in captivity.

It has been a surprise to me to receive so many letters from all over the United States asking where one may purchase Euphorbias. I know Harry Johnson and A. Krejci have a supply, but actually not too many are listed. When these sources are exhausted, where can one go to get the more rare varieties, which you naturally want in your collection? Perhaps this will encourage some grower to stock more Euphorbias.

I have enjoyed telling about our plants and I hope this will encourage some other growers to tell us of their methods.

MILDRED WELLBAUM
Mulino, Oregon

Editor's Note: Who will photograph the Euphorbias now found in collections?

NEW SUCCULENT CULTIVARS

By MYRON KIMNACH

In literature on succulents there has long been an unjust neglect of hybrids and other cultivars, due mostly to the traditional preference for species among collectors of these plants. Yet probably everyone prefers some succulent hybrids to many of the less interesting species, and as has occurred in other branches of horticulture it is likely that hybrids will eventually be the more popular.

Succulent cultivars have seldom been formally named, pictured and described in the literature, and much confusion has resulted; in addition, the often interesting story of their origin is usually left untold. The present series will introduce and discuss worthwhile plants recently originated by various hybridizers. We shall adhere to the International Code of Nomenclature for Cultivated Plants, edition of 1958, and to avoid future misidentifications a voucher-specimen of each new cultivar will be deposited in the herbarium of the Bailey Hortorium, Cornell University, Ithaca, New York.

1. *Crassula* 'Jade Necklace'

Crassula marnieriana is a recently published species reminiscent of *C. perforata* but with smaller, erect stems and denser leaves. Its small size and congested foliage make it a promising parent for hybridizing, and in 1955 I crossed it with the well-known *C. falcata,* the goal being a small plant with white leaves and red flowers. The two seedlings obtained possess none of these characters, however, and are not exactly intermediate to their parents, unlike most primary hybrids of *Crassulaceae;* one clone, still unflowered and to be named at a later date, has leaves thickly frosted with the white papillae of *C. falcata,* but the one introduced here retains only a beading along part of each leaf-margin, the leaves are more similar to those of *C. marnieriana,* and the flowers are nearly white, becoming slightly pinkish if kept in strong light. Yet *C. falcata* is decidedly in the ancestry of both seedlings, for their opposite leaves are convolute (mutually overlapping) at the leaf-margin bases,

FIG. 7. The original seedling of *Crassula* 'Jade Necklace' first flowering 33 months after germination. x0.3

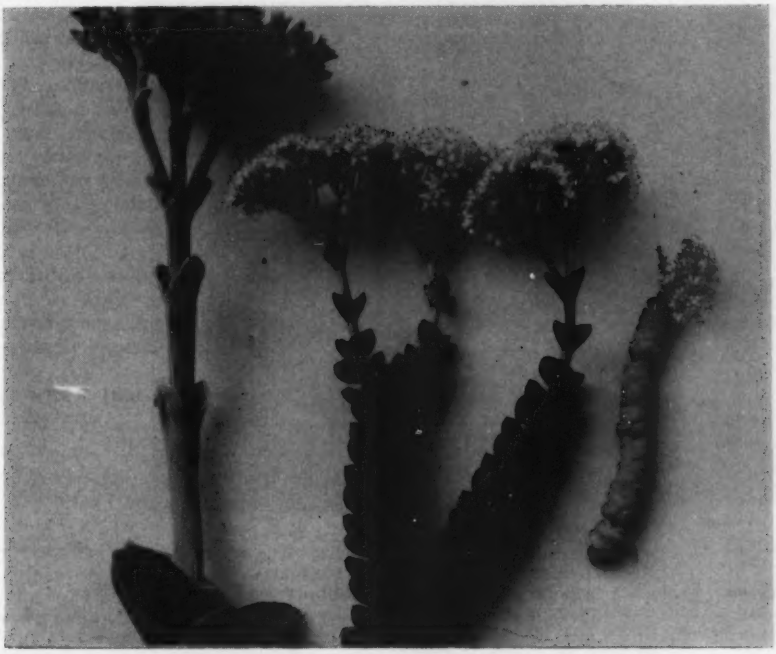

FIG. 8. Left, *Crassula falcata* (UCBG 47.546); center, *C.* 'Jade Necklace'; right, *C. marnieriana* (UCBG 50.2090). x0.6

a distinctive character of *C. falcata,* and the floral morphology is similar. Unfortunately the flowers of *C.* 'Jade Necklace' are ill-smelling, as in many Crassulas, but the acrid odor nearly disappears at night. Oddly enough, neither parent has malodorous flowers and in some forms of *C. falcata* they are even pleasantly fragrant. As might be expected, both parents and offspring flower together in early winter.

Crassula 'Jade Necklace' resembles to some extent several species of "Necklace" Crassulas, but differs in its green, denser foliage and more attractive inflorescence. Its jade-green, red-edged leaves and rather large, pink-tinged flowers recommend it as a desirable plant for greenhouse culture and for rockeries in mild-winter areas. Plants will soon be available to nurseries and collectors through the International Succulent Institute.

Crassula 'Jade Necklace', new cultivar

Hybridizer: Myron Kimnach, 1955.

Parents: *C. falcata* (UCBG 47.546, Rodin 1237—pollen parent) × *C. marnieriana* (UCBG 50.2090, Stellenbosch 5470).

Plant shrubby, erect, later spreading; branches 1.5 cm. thick, up to 20 or more cm. long, the stems 3 to 5 mm. thick, each usually branching dichotomously several times, usually hidden by leaves; leaves perfoliate and half-connate, the non-connate margins convolute, widely ovate-deltoid, slightly cymbiform, 7 mm. long and 15 mm. wide, ca. 5 mm. thick, glabrous, green, dotted darker green, the margin reddish and with a row of white papillae near base; inflorescence appearing in October and November, terminal, cymose, ca. 5 cm. long and 5 by 3 cm. in diameter, the apical surface convex, the lower pairs of bracts ca. 1 cm. apart, ovate, ciliate, the flowers 5 mm. long, the limb 8 mm. wide, the petals white, tinged pinkish, darkest on exterior of bud.

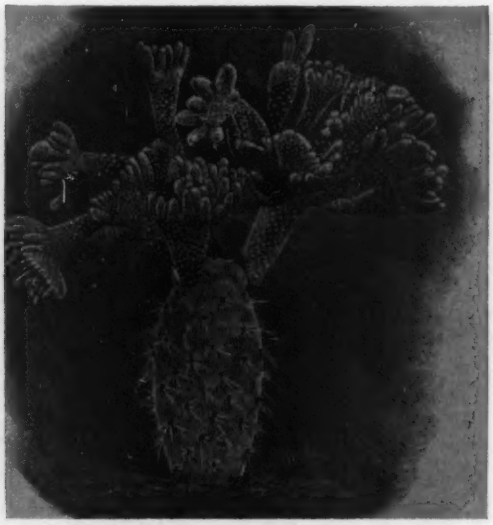

FIG. 9. Drawing of a crested form of *Opuntia clavarioides* that was shown in the German cactus magazine in 1893. It was from this illustration that Britton and Rose made their drawing.

OPUNTIA CLAVARIOIDES

By J. C. BUTTNER

"Great oaks from little acorns grow" is an adage that might well be applied to the development of the available *Opuntia clavarioides* in Southern California. It happened like this.

Mr. Robert Taylor, of El Cajon, California, is an avid collector of cactus, and has been searching out the unusual for many years. He goes into the native regions of Mexico, Arizona, Texas, and by mail, into Europe, England and Japan to find new specimens to add to his collection. In one of his trades with other cactophiles across the waters, he obtained a tiny nubbin of *O. clavarioides* from an English fan.

Mr. Taylor had never seen this plant before, but because it was such a small piece, he concluded it should be grafted to a slender stock of Selenicereus. The graft took readily, and soon outgrew its support. New grafts were made on sturdier stock, each time yielding larger and larger "heads" of the clavarioides.

Seeing the possibilities for fast production, and with an eye to the financial end of his collecting, which has become a definite business in the past two years, Mr. Taylor made arrangements with Mr. and Mrs. John C. Buttner, Sr., of Rainbow, California, to handle these plants for him in a commercial way at their extensive garden on Highway 395.

The names that have been applied to these plants by observers are the result of spontaneous associations that flit through the minds of everyone who first looks at something new: Mushrooms! Coral from the sea! Gnome's thrones! Black fingers! Fairy castles in the air! and so on, depending on whether the viewer is looking at the normal form, or the cristate, or the monstrose versions. These three variations have come from the one original plant without rhyme or reason.

Clavarioides was known in collectors' gardens as far back as 1893 but in the interim of years it has become very rare. Fine illustrations are to be found in several of the works on cactus, such as Borg's "Cacti" page 79. We feel fortunate indeed to be able to show the accompanying picture of a grafted plant in bloom. Britton and Rose had to rely on second hand information for their description of the flowers—"Very little is known of this species, although it was described as long ago as 1837, and it is rare in collections. We have never seen it in flower, and have seen only one record of it flowering in cultivation."

Maturity is a prerequisite to blooming in any plant, but the question arises regarding clavarioides, when does it reach this state of development? From the experience of Mr. Taylor, it can be expected to bloom in just two years on a

graft that has been undisturbed by removing the branches for further propagation.

In its natural habitat, Chile, or growing on its own roots, growth is very slow, as the large tuberous roots must develop below the ground surface while apparently little or no growth is taking place on top.

The plant does best when given partial shade in California. If grafted, and the growth develops to a heavy, much branched head, care must be taken during the winter season to keep the plant dry and well aired. Likewise it is best to keep it dry when grown on its own roots. Loose, gravelly soil that drains readily has given success with the ungrafted plants grown by the Buttners.

If you want a treat in fantasy, try growing *Opuntia clavarioides*.

FIG. 10. A grafted plant from Buttner's Nursery with 10 buds and flowers.

FROM CANADA

Our growing season in Canada is from early June to September, a little over three months, and that is the time when we really can do something to help our cacti along. Having no hothouse or greenhouse, I solved my problem the simplest way I could think of. When the sun gets warmer and there is no more danger of night frosts, I prepare a bed in my back yard garden, laying an inch or two of cinders, pebbles or broken brick at the bottom of the bed on which I place my cacti, still in their pots, and cover the pots and all with sandy soil, raising the bed to the tops of the pots. I cover the tops of the pots on an even level to make a nice looking bed, with pure sand and gravel. As the pots are not visible —it makes an appearance of the cacti growing in a bed of pure gravel. Having done that, I leave them there for the rest of the summer, without further bother. No covering or protecting them from rain or mist—in fact, they seem to enjoy a good shower and never give me any indication, that they don't like it, or suffer on account of it.

In the early part or middle of September, when the days get cooler and before the night frosts come, I dig them out with their pots and down in the basement they go, to rest and sleep till the time comes to come out again, the next spring.

I built a large table in the basement, with windows from south and west, where the cacti are placed side by side. The temperature in the basement is around 50 degrees, pretty steady, all winter. Watering is done about two or three times during the winter.

This way I lose very few plants. The only trouble seems to be my eagerness to wake them up too soon and get them growing again in the spring. Sometimes, I bring them out too soon, and the night frosts would cut them down, or they get sunburned if not exposed to the sun gradually.

Most of my cacti were ordered from Harry Johnson, Pasadena, Calif., but our Government puts up restrictions on U.S. imports, which are hard to meet.

We can get seedlings and young plants right here in Canada from greenhouse florists. As they start the plants from mixed seed, nobody can tell for sure of the botanical name of any seedling.

I had an interesting talk with a saleslady the other day at the Woolworth's store flower department. While browsing around the succulent table, I picked up a pot with a plant, which turned out later to be the Stapelia variegata. The lady turned to me with a bright smile, asking:

"What can I do for you, Sir?" I handed the little plant to her with a question, if she could tell me the botanical name of it.

"Why, certainly," she said, still radiantly, "that is a cactus."

"Sorry to disagree with you," was my reply, "but this plant does not happen to be a cactus." The smile faded on her face and a frown took it's place:

"If you know better than I, then why ask me!"

I was all appologies, explaining that I didn't mean to be rude and only wanted to know what I was buying, which means the correct name of this plant, if possible.

"Besides," I continued, "even if you were correct, and this was a cactus, which it isn't, I would still be in the dark, as there are over 2,000 species of cacti known, and I only wanted to know the specific name of this plant. To say that this plant is cactus, would be the same if I asked you the name of that plant"—and I pointed to a geranium on the next table, "and you would say that it was a flower. Of course, you would be hundred per cent correct, but it still wouldn't answer my question, as there are millions of flowers in the world."

After such a lecture, she wasn't eager to sell me anything and walked away from the table. I had trouble to find another saleslady, who would take the money for the Stapelia I wanted to buy.

W. Rover,
773 Dupont St.,
Toronto 4, Ont., Canada

FURTHER NOTES ON ECHEVERIA

By ERIC WALTHER

Research Associate, Department of Botany, California Academy of Sciences

PART V

When we started our final (?) revision of our *Echeveria* manuscript, in November of 1957, our list then covered 108 distinct items, whether species or varieties. Today our corrected list extends to 149 different items, nearly all known to us as living plants; to which will have to be added at least another 10 or 12 novelties discovered last year in Oaxaca by Mr. Thomas MacDougall. And the end is not yet.
—E. W.

86. Echeveria viridissima sp. nov.

"Pertinens Ser. *Australes;* glabra, caulescens, ramosa, ad 30 cm. alta; foliis subrosulatis, obovato-cuneatis, mucronatis, ad 9 cm. longis, 4-5 cm. latis, viridibus, saepe rubro-tinctis; inflorescentiis racemosis vel subpaniculatis, ad 20 cm. longis; pedunculis validis; bracteis obovatis, 35 mm. longis; pedicellis 2- 3-floribus basi, 1-floribus apice, 2- 3-bracteolatis; sepalis adscendentibus vel recurvatis, lineari-lanceolatis, acutis, subaequalibus, 2 cm. longis; corollis 16 mm. longis, 13 mm. diametro, rubris."

Holotype: CAS-409883, T. MacDougall #51/B-134; *Isotype:* UC.; *Clonotype:* University of California Botanic Garden 56.805-1.

Occurrence: Mexico. Oaxaca; Dist. Miahuatlan, San Pedro Mixtepec, "Guish-gal," 10,000 ft.; between and on scattered rocks, in nearly full light or partial shade from scattered oaks, madronas, etc., accompanied by *Villadia sp.*, a fern with "20-leaflets", etc.

Description: (From living material obtained from UCBG.)

Glabrous subshrub with numerous ascending to spreading branches, to 20 cm. tall or more; leaves subrosulate, ascending to spreading, obovate to cuneate, shortly mucronate, flat or shallowly concave above, faintly keeled beneath, to 10 cm. long and 6 cm. broad; inflorescences 1 or more, arising from below the leaves, erect above, racemose to subspicate in upper portion, subpaniculate in lower part; peduncle stout, 8 to 12 mm. thick at base; bracts numerous, broadly ovate, mucronate, 35 mm. long, ascending to strongly recurved; some of the lowermost pedicels with 2 or more flowers, uppermost single-flowered, 4 to 8 mm. long, subangular, with 2-3 bractlets, these recurved; sepals subequal, ascending to recurved, linear-lanceolate, aristate-acuminate, scarcely united at base, longest to 20 mm. long, faintly keeled beneath; corolla pentagonal, bi-gibbose, to 16 mm. long and 10-13 mm. in diameter; petals sharply keeled, deeply hollowed within at base, at apex slightly spreading, acuminate; nectaries transversely-reniform, to 2.5 mm. wide. Fls. IV-XI.

Color: Leaves biscay-green, in sun tinged

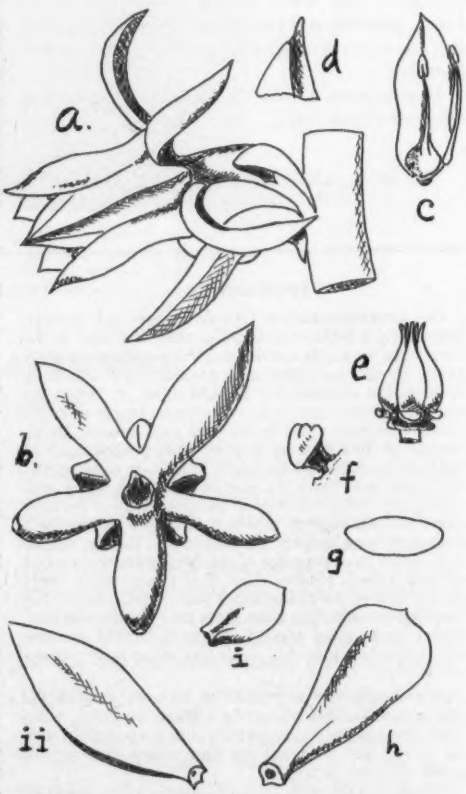

FIG. 11. *Echeveria viridissima*
a. side-view of corolla x 2
b. base of calyx x 2
c. inside of petal x 2
d. petal-tip x 8
e. carpels x 2
f. nectary, front-view x 8
g. nectary, side-view x 8
h. leaf x 0.4
i. bract x 0.4
ii. upper bract x 2

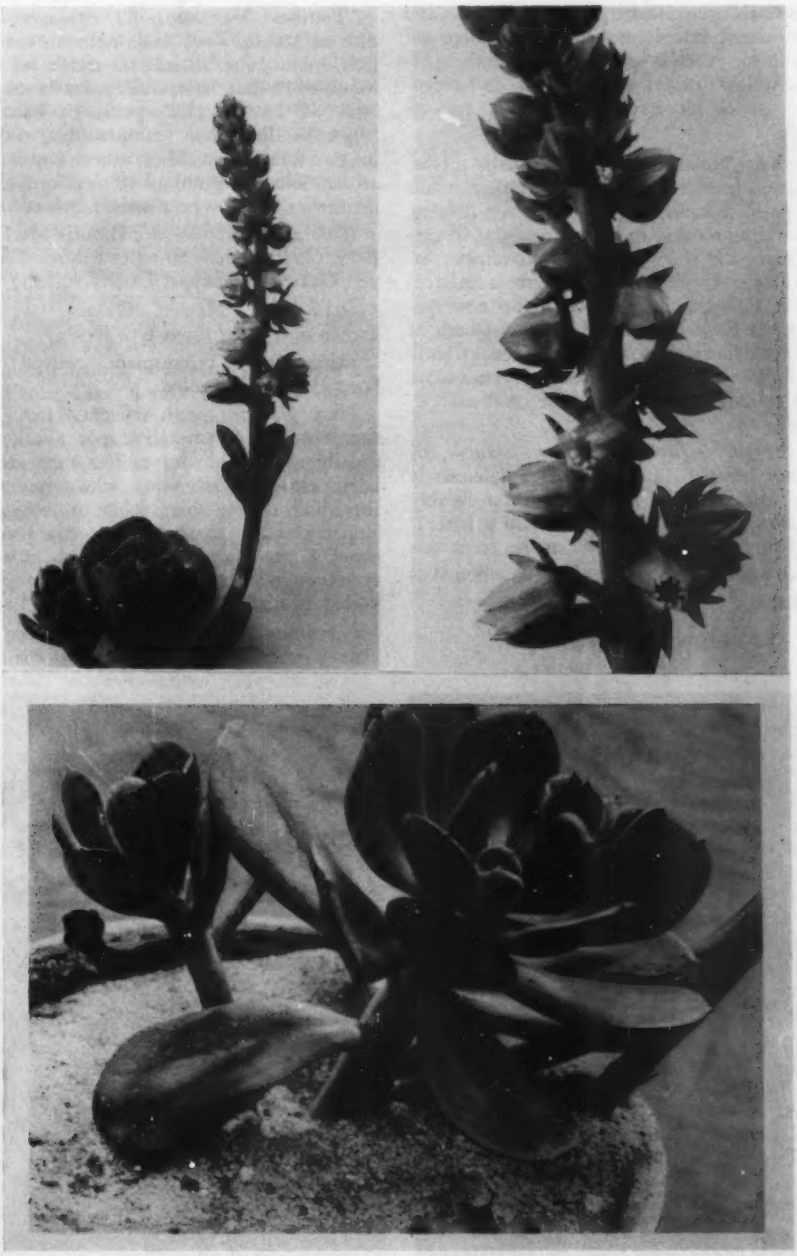

FIG. 12
Echeveria viridissima. Upper left, flowering branch. Upper right, flowers. Lower, foliage.
(Material courtesy of Mr. P. C. Hutchison.)

indian-red at edges, apex and on lower surface; peduncle to spectrum-red in sun; bracts as the leaves; sepals biscay-green tinged morocco-red at tips in sun; corolla spectrum-red; petals light-orange-yellow inside; carpels clear dull-green-yellow; styles morocco-red; nectaries apricot-yellow.

Remarks: Notable in its exceptionally bright, deep green foliage which often assumes brilliant red tints in the sun, and its bright red flowers, this novelty promises to become popular in gardens, especially if its promise of hardiness, inferred from its high-mountain origin, is realized. In habit, foliage and inflorescence this new species recalls *E. bicolor* and *E. montana,* both of which have much paler foliage and less brightly colored flowers, nor do these normally bear more than a solitary flower on the lowermost pseudopedicels.

"Guish-gal" is Zapotec for *"Fern-twenty",* the reference being to a fern with approximately twenty leaflets found at the particular locality (as stated by Mr. T. MacDougall in a letter). An attempt to coin a specific name from this Zapotec word was considered, but abandoned as inadvisable.

99. Echeveria globuliflora sp. nov.

"Pertines Ser. *Australes;* glaberima, caudice ad 10 cm. also; foliis numerosis, subrosulatis, oblongo-oblanceolatis, usque ad 5 cm. longis et 15 mm. latis; inflorescentiis subpaniculatis, ad 25 cm. altis; pedicellis bracteolatis, bracteolis linearibus, minutissimis, 1-3 mm. longis; sepalis aequalibus, adscendentibus. linear-lanceolatis; corollis ad 10 mm. longis, 8 mm. diametro; petalis subcarinatis, rubris et flavis."

Holotype: CAS-408986. Thomas MacDougall B-79, Cerro Arenal, 50 miles west of Tehuantepec, Oaxaca. (Paratype: UCBG-56.793)

Occurrence: Mexico. Oaxaca, at present known only from above type-locality.

Description: (From plant received of Mr. Scott Haselton, Pasadena.)

Plant glabrous, with evident, erect, at first simple stem to 10 cm. tall or more; bark of stem usually roughened; leaves numerous, subrosulately crowded, ascending when young, later spreading, oblong-oblanceolate to obovate-cuneate, muchonate, to acute or shortly acuminate, about 5 cm. long, 15 mm. broad, rather thin even though fleshy, upcurved, somewhat oblique, keeled beneath; inflorescences 3 to 5, arising

FIG. 13
Echeveria globuliflora. Left, flowering branch. Right, flowers. Grown and photographed by Mr. Scott E. Haselton.

from between lower leaves, to 25 cm. tall, equilateral, irregularly paniculate-racemose or cymose; peduncle erect, to spreading ,or even decumbent in shade, 3 mm. thick below; lower bracts not readily detached, obovate-oblong, to 20 mm. long, thick, subtriquetrous, obliquely keeled, acute, or truncate and mucronate, upcurved; lower branches of inflorescence few, short, with 2 to 6 flowers each; upper pseudopedicels slender, elongated, to 10 mm. long or more, somewhat thickened below calyx, bearing 2 slender, linear, terete, upcurved bractlets that are often only 1 mm. long; sepals nearly equal, linear-lanceolate, subterete, acute, strongly ascending to appressed, longest 4 to 5 mm. long; corolla globose-urceolate, almost spherical at anthesis but pentagonal, to 10 mm. long, 8 mm. in diameter near base, 6 mm. wide at mouth at anthesis; petals keeled, rather broad, folded together above, apex bluntly apiculate, bearing a fine, retrorse bristle-like tip; carpels 6 mm. long, slender; nectaries transversely lunate-reniform, 1-1½ mm. wide. Fls. V-XI.

Color: Leaves lettuce to elm-green, strongly tinged pompeian-red beneath, especially at edges and keel; peduncle acajou-red; bracts as the leaves; pedicels jasper-pink with bloom intact; corolla peach-red, edges of petals light-orange-yellow; sepals and upper bracts biscay-green, tipped with sorghum-brown; carpels bright-green-yellow, to neva-green above.

Remarks: This is another novelty recently introduced from Oaxaca, where it was discovered by the indefatigable collector Mr. Thomas MacDougall. The recent flowering of a second specimen at the University of California Botanic Garden enables us to submit a corrected description and more adequate illustrations. *E. multicaulis* Rose is probably the closest relation, but that species has broader, blunter leaves and a wide-open, campanulate corolla.

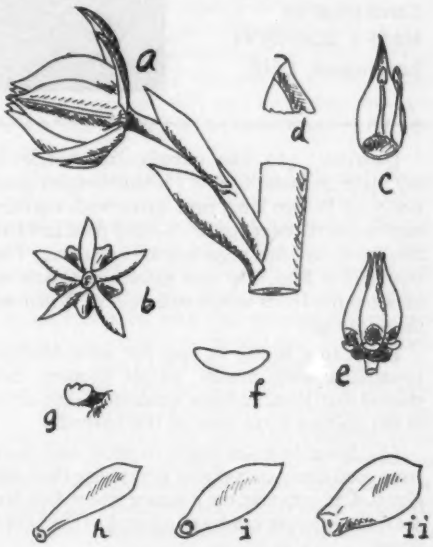

FIG. 14. *Echeveria globuliflora*
a. side-view of corolla x 2
b. base of calyx x 2
c. inside of petal x 2
d. petal-tip x 8
e. carpels x 2
f. nectary, front-view x 8
g. nectary, side-view x 8
h. leaf x 0.4
i. upper bract x 2
ii. lower bract x 0.8

UNUSUAL OFFSETTING IN THE GENUS ASTROPHYTUM

Several years ago on a collecting trip in Mexico I came across an *Astrophytum capricorne* that had lost its top. The plant developed a couple of offsets normally through the medium of the areoles but arising from the vascular tissue on top was another offset perfectly normal in shape but not developed through an areole. Last year I obtained an *A. asterias* about an inch and a half in diameter and cut it longitudinally, grafting both halves. The half with the growing head has put on some growth and has produced an offset normally through an areole. The half without the growing head has made no motions of offsetting normally but through the scar tissue from the graft connection an offset has pushed out, bursting through the scar tissue skin. Does this peculiar characteristic occur in *A. myriostigma* and *A. ornatum* also?

I have seen an old plant of one of the milky Mammillarias develop offsets from the vascular tissue in the same manner when the top has been cut off.

TED HUTCHISON
Calico Ghost Town
Yermo, California

QUESTIONS and ANSWERS

Conducted by
HARRY JOHNSON
Paramount, Calif.

Question: (1) The unpollenized ovaries on my plant of Easter Cactus (Schlumbergera gaertneri) are ½ inch long, firm, green with a reddish hue on the rib edges of the 5-sided fruit and have the dried perianth segments still attached. They flowered in May. The new growth has come out between the fruits which still persist. When will they drop off?

(2) Can a source be had for Schlumbergera russelliana with orange purple blooms, bell-shaped that John Rodgers speaks of in his article in the January 1944 issue of the Journal.

(3) Since cacti are easier to grow and flower from seed many cactophiles are raising their own plants. Can you give me a source where true seed not mixed species can be purchased in the United States?

MRS. I. L. VANINETTI
Washington

Answer: (1) The flowers of Schlumbergera are self fertile. If seed is not wanted the pods are best pinched off at once. It is interesting to sow the seed and raise the little seedlings as they are generally vigorous growers. It takes them 3 to 4 or more years to come into flower. The pods will hang on for a long time and may dry up without falling.

(2) Schlumbergera russelliana is not in cultivation as far as I have been able to determine. I have imported it many times but so far the plants have always turned out to be something else. The flowers are supposed to be purplish-red. I have received the plant from collectors in Brazil but none has been at all like the descriptions. Sometime in the nineteen forties I published in the Journal an account by G. Gardner of his original discovery of the species in the Organ Mts. of Brazil. They were found below 3,000 feet while Zygocactus truncatus was found above this elevation. The published date was 1839. It would seem it should be an easy matter to collect the plant again since the locality is very well known. Gardner was a medical student who had worked under Sir Joseph Hooker at Kew and was collecting in Brazil for the Duke of Bedford of Woburn Abbey whose family name was Russell. Hence the specific name "russelliana". He published it as Cereus as at that time few cactus genera were recognized. Gardner had just finished a most interesting journey from near the sources of the Rio Toncatins south through the mountains and plateaus to the vicinity of Rio de Janiero. The region yielded many plants to our greenhouse as Bougainvillea and Dipladenia. It was accessible at that time owing to the diamond mines which were being exploited. If any fancier has the plant and has flowered it, it would be most interesting to hear from him.

(3) As regards seeds of the more uncommon catci and succulents. I know of no U. S. dealer who sells small packets of individual species. There were a few dealers at one time including ourselves who listed many species. It became a matter of simple economics that the expense involved was not justified by the returns. Few good species can be purchased by dealers in quantity and the costs of advertising and distributing would now be fairly astronomical. Also almost all the rare species are seldom procurable. The better cacti have to be hand pollinated and most produce but small quantities of seed even then. Actually many cacti and succulents have been collected only once or twice, often many years ago and the only way to get seed is to raise it yourself. As regards seedlings flowering better almost all cacti offered by dealers are grown from seed. In actual practice plants grown from cuttings will flower long before seedlings will. With the exception of a few cacti which grow very fast it is a very slow process to raise many cacti from cuttings hence few are so raised. With succulents it is somewhat different. The better forms of species must be raised from cuttings as seed of course is variable. Many species do come readily from seed but require considerable care and time.

Question: My Stone Face (Lithops) seed germinated 100% but within a month all were gone. Just melted away. What happened and what did I do wrong?

MRS. KARL LUDOVITZ
Massachusetts

Answer: Lithops seed germinates very quickly and almost all of it comes up. Your trouble came from not properly hardening off the little seedlings as soon as germination was completed. I sow the seed in sandy loam soil preparing the seed pan by smoothing it off and then sifting a ¼ inch layer over it and lightly pressing it flat. The seed is sown thinly over the surface and covered with less than a ⅛ inch layer of fairly coarse, washed sand. Soak the pot in a shallow pan of water until moisture shows on the surface. Place a pane of glass over the pot or enclose in a plastic bag and put it in a warm, very light position but not in full sun. They germinate well at 65 deg. to 70 deg. As soon as well germinated

which will be in one or two weeks tip the glass up and in three or four days remove entirely unless it is very hot and dry. Give them plenty of air and light otherwise they will grow tall and watery and promptly melt away. They may be kept damp for a month or so until the roots take hold. When ⅛ inch in diameter they are fairly safe. They may be transplanted at this time or be grown drier. In three or four months the new bud will split its way through and the first connate pair of leaves will show. Don't water too much as they are absorbing the cotyledons. When a new pair of leaves are forming they must completely absorb all the moisture and food in the old pair or they will split their way through and spoil, for that year, the symmetry of the plant.

EPIPHYLLUMS

Dear Mr. Haselton:

Your book on epiphyllums is really very interesting and complete. Now I have about 150 different epiphyllums. I got part of them from Germany, from France, from Brazil and from your country. It seems that the epiphyllums from Europe adapt better than others. First I had a lot of trouble till I found out how to grow these plants. Now they are growing all very nicely. The weather is generally very changeable, sometimes we have wintertime in summer and summertime in winter. I found out that during the hottest summertime it is not good to keep the epiphyllums too moist. They can stand much more moisture without any harm when it is not very hot. In summer they rot very easily if kept too moist because sometimes we have extremely damp and at the same time very hot spells. Almost everything is saturated with moisture and heat and it is really suffocating during such spells and under such conditions fungii are extremely aggressive and any bite of an insect on new branches of epiphyllums under the surface of the earth opens the door for an infection that will not stop before some harm has been done before it can be seen. Under conditions like those just mentioned the plant's defenses seem to be quite weak due to great absorption of water.

This year my epiphyllums have been growing as never before and also during all the wintertime because we really had no winter this year. It was like summer when there should have been frost and cold.

Once I had not enough available soil and so I mixed what I had with about one third of hardwood shavings of a kind of wood that contains some tannin but not much. The size of the shavings was rather small and it also was mixed with much sawdust of the same wood. All the plants which I planted with this simple mixture grew splendidly, producing strong and healthy roots. Before, I had nematodes on some plants. I feel this mixture prevents or avoids a harmful activity of fungii and nematodes. This wood shavings don't decay, they last long and disintegrate extremely slowly without inducing growth of fungii as other common kinds of wood do. It is a wonderful solution for my former problems. This way (with one third of wood shavings) the soil remains loose, well ventilated and spongy just as epiphyllums like. Now I add one-third of wood shavings to the soil of all other plants (cacti and succulents) with the same good result. Even without any addition of sand this simple mixture produces healthy and strong plants. Now I am trying Mathieson's fertilizer 13-13-13 for the epiphyllums and it seems to be quite good for these plants.

H. FECHSER
E. Ramseyer 835
Olivos F.C.B.M.
Argentina

SPOTLIGHT ON ROUND ROBINS

Happy New Year everyone! Now that the rush of the Christmas season is over and the cacti are taking their cold naps in the Northern Hemisphere at least, I hope there will be time for catching up on reading and maybe joining a Round Robin also. If the latter sounds like a pleasant thing to do I'll be expecting to hear from you by card or letter. Joining a Robin would mean you meet other members of the Society, enjoy the exchange of ideas on cacti and succulents and their culture, the helpful hints, the pictures which often accompany a Robin, the new friends you will come to know better with each succeeding round and the downright pleasure, indeed the thrill, of reading these Robin letters. It is a heart warming experience in which you can take part when writing your letter for the Robin you join. Maybe you never found time to write until now even though you have read the invitation many times. Won't you write today?

The list of Round Robins desiring additional members follows. The newest Robin is Cactus and Succulent R. R. No. 10 which would do nicely with a couple of members to fill its membership. Mostly small collections in this group. The Epiphyllum Robin has three ardent growers of these cacti and several more would balance the Robin group. It is hoped to have this Robin on the wing before too long even if the group is small. Write soon if interested. There is to be a revision of the International Robin No. 2 membership and if anyone is interested in being in this group let me know. If it should happen there are more than enough to fill this group there is a new International Robin mentioned previously which would be available. I have on file inquiries for other Robins from one member and in one case two members seeking an individual Robin on Stapelias, Opuntias and Echeverias respectively. If any of these plants are those you collect and would like to correspond with others who enjoy them too, then let me know.

Among the newest members to be added to our expanding Robin list are Mrs. Marian L. Case, Albion,

Pennsylvania; Mrs. Dorothy Carr, Maine; Miss Edith Borie, New York, N. Y.; Mrs. Lloyd Garrett, Oregon; Mrs. Walter Mielke, Pittsburgh, Pennsylvania; Mrs. Emily B. Kirby, Charlottesville, Virginia; Mr. Leslie F. Tookey, Herstmonceux, Sussex, England.

With a dozen Robins in since my last report you will understand it isn't possible to even begin to report on all of them as I should like to. However, to begin somewhere and for the benefit of those anticipating building a greenhouse, several members have written about theirs which they have had built. Rose White, in California, sent a clipping with details of her greenhouse which was built with redwood lumber, a lean-to type roof of glass overlapped like shingles, and alternating fixed and removable Celloglass panels on the sides. It is a separate building, 21′ x 8′, set on a concrete block foundation and heated with an electric heater. It has room for 400 plants and the estimated cost was $150. The fact that the light weight Celloglass panels, those which are removable, can be completely removed during the summer, makes a nice airy shelter of the greenhouse for her plants. The benches for the plants are redwood and filled with sand which she keeps moist. The floor is gravel. Another member, Nona B. Mott, in Arizona, said way back in March of 1957, "I'm getting a new plant house this summer—Yipee! A 15′ x 20′. We are going to use the corrugated fiberglass for the top instead of regular glass. It is being used for greenhouses extensively, so it should be OK." In September she wrote, "Re: corrugated fiberglass—nothing casts a shadow or shade in my plant house. There is as much light under the plants as anywhere! This we didn't know or we could have made the walls higher. Also shelves could have been practical—one on top of the other to some extent. It is positively uncanny how none of the rafters or even the power pole throw no shadow!" In November she was saying, "But GOLLIE! you ought to see how everything is growing! It is about twice as big as the old one and now I wish it was twice as big as it is." Nick Glaviano also has built his own greenhouse and in November is saying in International Robin No. 3, "Have all the plants under glass at last. Don't know whether it is the physiological effect of having glass enclosure or what, seems like the last three weeks everything took off with blooms or new growth."

I am sorry to report Shirley Schrade has been gravely ill with rheumatic fever and has had to resign from directing C. & S. Robin No. 9 for a year at least. Her fine collection of cacti, which she grew so successfully, has had to be disposed of as best she could. We all wish her a speedy recovery and hope she will be back with the Robin some day with a new collection.

Mrs. Anne Jones writes she lives on the edge of a barren, desert-like area, where water has rushed down from the mountains for centuries and left rocks, boulders and silt. It is called a wash and in it "we find a few cacti, yucca, agaves, native shrubs and animals. The drainage is so good here I despair of ever keeping any nourishment in the soil, or even a drop of water near the roots of my plants. However I have religiously added leaf mold, peat moss and manure until now some of my yard has fairly decent growing medium. Mr. Johnson suggested manure as a mulch to keep my plants moist while on vacation. I never would have risked it except for his recommendation but it has done wonders for my cacti. Several that seemed through blooming started again, and many began putting out pups within two weeks after the application."

The new Euphorbia Robin No. 2 has as Director, Mrs. Ruth Nilsson, who has unbounded enthusiasm for her plants, having come from a family of tree and flower lovers. The Robin was off to a quick start with a full membership almost from the beginning round. A few members have, from time to time, mentioned using fluorescent lights for plants in basement quarters. Mrs. Helen Swanson keeps her Euphorbias under these lights until May when they go out into the garden. Another member, Mrs. Vie McIntoch, in Texas, says, "I don't have a greenhouse but I have a pit dug about three feet deep and eight feet wide and eighteen feet long covered with plastic on a frame. This way my plants get plenty of light and some sun through the winter months. I have no heat but have never lost a plant from freezing." Mrs. Ruth Sunday has a greenhouse for her sixty-three different Euphorbias and wrote, "About four years ago my Cereiformis popped seeds all over the greenhouse, and when they came up I carefully saved each one. I was giving them away until I discovered I was giving away a new kind, as they had crossed with others I had. I have three distinct, different kinds. One is a wonderful plant with long spines but with only five sides." She added, "Guess my worst problem is my desire to get more and more plants, and for a cactophile that's an incurable disease." Mrs. Lucia Kres and her husband, Joe Kres, share an interest in Euphorbias and she wrote "We have today 72 different species—all Euphorbias, not representatives of other genera of the Euphorbiaceae. Of the other genera we have Jatropha, Sarcostemma, Pedilanthus and Synadenium. We have a growing collection of crested and variegated specimens. Among the crests are mauretanica, lactea, hermentiana, ammak, obesa, caputmedusae and among the variations have nerifolia, enopla. In regard to pfersdorfii and submammilaris which resemble each other, submammilaris is something of an anomaly to taxonomists. While there is uncertainty about the species, since it closely resembles fimbricata, it has not been discarded as a distinct species. Pfersdorfii is not legitimate nomenclature. It is a strange form of submammilaris and is a name used by some growers without justification." The prices asked for Euphorbias, which many thought high, brought this comment from Mrs. Kres, "I'd like to clarify something in regard to the prices charged for Euphorbias. While a fair number of species can be propagated by cuttings, there is a much greater number that propagate only from seed. On the whole, Euphorbias are not a fast rooting group. The time and labor involved to grow either from seed or cuttings is a factor which makes these more expensive. Euphorbias are the most expensive of the succulent plants to be obtained." She ended by saying, "We are looking forward to events this winter inasmuch as so many of our plants, including the Euphorbias, experience their growing period during that season, but have been held back by lack of sufficient warmth to achieve additional good growth."

I hope everyone who made a good resolution to join a Round Robin will do so this year and find out for himself the joys of such correspondence. Do write to me.

(Mrs.) Gladys H. Panis
P. O. Box 705,
Falmouth, Massachusetts

THE CACTUS & SUCCULENT SOCIETY OF AMERICA
Officers for 1959

President:	Harry Johnson, Sr.
Vice President:	Don B. Skinner
Secretary:	Wm. B. Bentley
Treasurer:	Robert T. Craig
Board of Directors:	
	Earnest Beahm
	E. Yale Dawson
	Pat Moorten

Wm. B. Bentley, Sec'y

Activities of the New Mexico Cactus and Succulent Society

JANUARY THROUGH OCTOBER 1958

In January we met at the home of Mr. and Mrs. Edward Nadolny. One purpose of our meeting was to establish a plan for activities for the coming year. It was decided that we would carry on all current activities in addition to stressing the educational aspects of our hobby. One means by which this was to be carried out was by making a master list of all books in our private collections, and making them available for our local members and friends to borrow for reference. After the business meeting the members were entertained thoroughly viewing slides of and the collection of our hosts.

In February our meeting was held in the Biology building of the University of New Mexico. The master list of books available for study was brought to the meeting by Mrs. Betty Vortman. Mr. Luke Vortman and Mr. Van Luhrs agreed to plan field trips for our society for the spring and summer seasons. We were pleased to find our corrections of LIFE magazine, of February 3, 1958, acknowledged by the editors. They printed a picture of the Agave americana covered with snow near Mexico City and called it a picture of "Snow Covered Cactus". After the business meeting Prince Pierce displayed a collection of various species of Echinocereus and explained the dominant characteristics of this group of plants, and where local species were to be found.

In April we met at the University of New Mexico. At this meeting Prince Pierce helped the society to learn how to use a botanical key in determining the identity of a strange cactus. Important characteristics were pointed out and members of sixteen genera were studied. After this study, each member had to make his or her decision as to the proper genus of an unknown plant, which had been undiscussed up to this time. After writing down their decisions, the correct identity of the plant was demonstrated to the group, step by step, thus bringing out any errors of judgment on the part of the persons studying. The members enjoyed the lesson and asked for a repetition at a later date. Two visitors pleased with the study hoped we would continue it.

On May 16, the society met at the home of Mr. and Mrs. Prince Pierce. The main subject of business was the great need for plants and care at the civic auditorium garden. Two field trips were also scheduled for the month of May. On May 17, a collection excursion for the express purpose of getting native plants for the civic garden was carried out. Almost all the membership turned out with shovels, picks, boxes and trailers. We went to the nearby Sandia Mountains and their vicinity for native shrubs, succulents and cactus. After a full day of collecting and replanting the garden was much improved. On May 18, Mrs. Anne Sherman, Mrs. Nell Rotzell, Mr. Ed Nadolny and Prince Pierce took the first scheduled field trip to Ojo Caliente, New Mexico. This town is a historic New Mexican spa, where the pioneers and many present day tourists go to take the waters. We all made exciting collections of Pediocactus simpsonii, Echinocereus viridiflorus, E. triglochidiatus, E. coccineus, Coryphantha arizonica (Yes! In New Mexico!!), Opuntia fragilis, and Ann Sherman actually found a crest of E. viridiflorus! We were fortunate in finding a few Pediocactus simpsonii still in flower, so we added to our slide collections of local flowering cactus. On May 21, Mr. and Mrs. Chris Steinmann held their "Rose Rendezvous" (an open rose garden) in connection with an open cactus garden. This was a benefit show where visitors paid an admission fee which was donated to the Cerebral Palsy Fund. Mrs. Anne Sherman acted as "Cactus Consultant" explaining the cactus collection to the visitors who were not acquainted with the hobby of cactus collecting.

On May 25, our president Mr. Maynard Blumer, his wife Sue, daughter Martha (age 13 months), their guest Miss Marge Johnston, Mr. Luke Vortman, Mrs. Anne Sherman, Mrs. Mary Jane Abrams, and Prince Pierce, went to a place known as Blue Springs. This place is famous among the membership as an especially fine habitat for Echinomastus intertextus. We all collected fine specimens of these, along with Echinocereus fendleri in flower, and several magnificent specimens of Mammillaria meacantha. The latter were found growing on the north sides of the huge clumps of "Bear Grass" with full coronets of creamy flowers. Opuntia imbricata was much in evidence but remained uncollected. Intense effort was put forth by all present in search of a crest among the thousands of Echinomastus intertextus. Only one plant showed evidence of crestation, and that had given way to branching type of growth and the crestation was lost, much to everyones disappointment.

In June we met at the home of Mr. and Mrs. Van Luhrs who have achieved a most remarkable composition of native cactus planted in a very restricted area. They even managed to have an epiphyllum in flower for the occasion. The club was very happy to have a report from the delegation of members who visited our Albuquerque City Manager, Mr. Edmund Engle, to the effect that the city would install adequate water sprinklers of the rainbird type, along with a retaining wall, and additional rock for terracing of the civic cactus garden. With the installation of the sprinklers, the loss of plants in the garden will be greatly alleviated.

Our July meeting was held at the home of Mrs. Ann Sherman, who has a remarkable collection of tiny plants, both cactus and succulents. We enjoyed slides in her pueblo style patio taken by Mrs. Jane Cowper and Mrs. Viola Blake on their trip to Old Mexico last year. Our plans for a field trip to the Franklin Mountains near El Paso, Texas had to be cancelled. We hope to achieve this trip next year.

In August Mr. and Mrs. Charles Furrer entertained the club in their spotlessly clean cactus garden, a marvel of achievement in our very breezy climate! We were very happy to learn that the City of Albuquerque had just completed the installation of the sprinklers in our civic cactus garden, thus making possible extensive planting during the fall season.

Mr. and Mrs. Luke Vortman donated 60 plants of the Echinocereus family to the civic garden. Mr. Vortman replanted all these plants by himself. The specimens included: Echinocereus rosei, Echinocereus dasyocanthus, Echinocereus coccineus, Echinocereus triglochidiatus and Echinocereus stramineus. All of these will add greatly to the floral display next spring.

In September the club met at the Prince Pierces to lay plans for a display at the state fair. The Pierce collection and greenhouse underwent a complete repotting and rebedding for the occasion. The club display at the New Mexico State Fair was moved from the flower show to the hobby building where the display was protected behind glass windows. All plants were numbered, with two large displaay cards on the wall behind the plants, with correct scientific names listed by number. It was well received by the public, and we were happy to report that there were no losses due to vandalism as in the past. Plans for next year's display are already under way. The membership was very sorry to lose Mr. and Mrs. Charles Harrington to Topeka,

Kansas by transfer. We hope they will find an active cactus club there!

Our October meeting was held at the home of Mr. and Mrs. Walter Gilbert. The Gilberts have a unique patio with completely automatic glass roof and louvred sun shades. Their patio with its huge Philodendron monsteria deliciosa nearly stole the show from their new greenhouse and cactus garden. Plans were laid for an extensive planting program the next day at the civic cactus garden. Mr. and Mrs. Chris Steinmann donated from their private garden, three huge native Yucca elata, four large Opuntia linguiformis, a large Opuntia lindheimeri, a huge Opuntia englemannii, several Opuntia imbricata of very large size, one Opuntia phaeacantha, one Opuntia laevicaulis, and several Opuntia polyacantha. This added up to a full hard day's work for Chris Steinmann, his two hired men, Mr. Van Luhrs, Mr. Maynard Blumer and Prince Pierce. At the end of the day we were proud to see that the planting had given the civic cactus garden a landscaped appearance worthy of its location. Our November election will present our new officers with a difficult task to achieve a more active and fruitful year. We all look forward to it was pleasure!

EDITOR'S NOTE: This report of the activities of a club in the Cactus Country is especially interesting. So many of the plants they collect and grow so easily are very difficult in other localities.

When "Cereusly Speaking, the Diary of a Cactophile" appeared in the February 1942 issue of this Journal, I was brash enough to think that it would be an "Advice to the Lovelorn Cactophile" for a short time. I thought it would be an outlet for my far-distant colleagues who write (and as time goes on, receive shorter and shorter answers) and I could answer them in my column. From a diary, it becomes a family album of cactus species by genera. My fan mail asks for more. Now I dispense culture, medical information, nutrition, and research, in and about our mutual hobby. I hope this column is of benefit to those who write me as well as those I never hear from.

Several have written to me about storage methods that I use. I make it a rule to store cacti and the other succulents that bloom in the late spring, summer and early fall, where they stay cool enough to become thoroughly dormant. Most of these are already used to temperatures in the low 40's. They are from Mexico, S.W. U.S.A., North Africa, Southern Europe and adjacent islands, as well as the cacti from central plains states. The nights from mid-September to storage time here along Lake Erie are normally between 66 and 37 degrees average but we have had a fall deficiency of temperature for at least three years so most of the plants are partially dormant while outside.

I do not like to encourage too many to do winter blooming because of our lack of sunshine. This lack does not injure the Rhipsalis, Pseudorhipsalis, Zygocactus, Christmas Cactus, Kalanchoes, Sedums, Crassulas, Aeoniums, Echeverias, Graptopetalums and Euphorbias, so I use them to brighten my winter retreat.

Several greenhouse owners have mentioned their "winter cactus morgues" in which they keep their spring, summer and fall-blooming plants. They seem to get little enjoyment during the winter from their collections. I'm one who refuses to let my plants "siesta" while I keep them from freezing and drying up. Perhaps I do miss a few flowers that some others get. It does not bother me as I have flowers the year around in profusion. There are intermittent bloomers, shy types and yearly types—I work with them all. This gives me a year's program.

There are some who keep their plants growing through all seasons with only a short rest period in mid-winter. I did this and found the percentage of summer flowers on such plants as Stapelias, Huernias, Epiphyllums, Selenicereus, Aporocactus, some Opuntias and Pereskias, was somewhat increased. More water was also given. Of course this was when the collection was less varied and consequently better adapted to such cultural methods.

Gradually as one adds plants, certain limitations are found in the number of ideal locations, good light, air movement, as well as the limitation of water and water vapor. However, with my storage space taxed to the capacity, I still try to set or hang each and every plant in the place that I have found most agreeable for it in the past. What about new-comers? Well, I do try to read what others have said, then I try and try until I ultimately find the ideal spot. I do miss on many but most of my plants in the greenhouse and in storage are seemingly happy.

I frequently use shock treatment: added light, more heat, less heat, etc. I'm still mulling over several diabolical schemes for some of my lazy flock to shock them into response.

I have a Sedum palmeri that was given to me about six years ago. It was a 2-inch cutting. The giver told me that it was a difficult Sedum to grow. I rooted it and followed the directions given for its culture. It grew leggy and put out two spindly, leggy shoots with small rosettes of spade-shaped leaves. It grew so slowly and lost its leaves so rapidly I decided to try a drastic course. I made a 2-inch cutting, rooted it and planted it in a pot of leafmold, sand and pulverized clay composition soil. It worked. The new plant is compact in growth with more leaves on the stem and larger rosettes of leaves. Seven heads, three of them budded with multiple heads of flower buds. The other plant had about eight yellow flowers in a small cluster. Observers think they are two different species since it never turns red as Sedum compressum does but the lower leaves turn yellow as "Succulents for the Amateur" states on page 114; I'm convinced it is Sedum palmeri. It's a fine plant, too.

I left the S.W. cacti, the Chamaecereus sylvestrii and its hybrids and the Andes Mountain Opuntias out until November 30. We did not have a killing frost until November 25 although the nights were cold. I usually store the plants in the coolest spot I can find in my greenhouse so I figured to let nature do it for me. The first snow-fall was November 26. The pots were under snow for four days. I set them in then because I was "chicken". They are all in cold storage spots in the greenhouse. I shall check for damage, new growth, flowers, etc. They have turned purple, red, and shriveled blue-green. They have light; the most for Chamaecereus and the least for S.W. cacti and Andes Opuntias.

I was sorry that the invitations I received from European collectors to stop while attending the World's Fair at Brussels couldn't materialize. It was nice of you to write me but my vocation is a Science Teacher while my avocation is a Cactophile. The first pays the money and the second is a "labor of love".

JOHN E. C. RODGERS
1229 Eighth Street
Lorain, Ohio

SPINE CHATS

LADISLAUS CUTAK

Folks, the cactus convention is only a few months away. If you haven't given it serious thought, it certainly needs your attention now. Since it will be held in St. Louis, we feel it will give everyone an equal opportunity to attend. St. Louis is centrally located in the United States and so, if you come from the East or West, North or South distances will not be as great as if you had to travel cross country. Whether you intend to come by bus, plane, train or your own auto all roads lead to the great metropolis located on one of the world's mightiest rivers, the Mississippi. Plan your vacation to coincide with the convention. Three full-packed convention days are contemplated and rest assured they will be eventful and not so easily forgotten. The convention city is a historic city—the original gateway to the West. Outstanding historic spots are located within its environs and many others near it. Be sure to bring your camera because interesting and beautiful shots await the click of your shutter.

St. Louis began as a fur trading post in 1764. Today it squeezes between a crescent bend in the Mississippi and supports a population of nearly a million souls. Its river-front birthplace, within hop-skip-and-jump of "Downtown" (main business and shopping section) contains such historic landmarks as the Old Cathedral, the Old Courthouse, and the Rock House. The Old Cathedral dates back to 1831 and is the oldest cathedral church west of the Mississippi, standing on the site where the first log church was erected in 1770. The New Cathedral is out on Lindell Boulevard and is a very interesting architectural structure—one of the largest of its type in the country—worthwhile your visit, too. The Old Courthouse (1839) is noted for the famous trials held in the Dred Scott slave case. The Rock House, built in 1818 as a fur trading post, is now the oldest brick building in the city.

St. Louis is world famous for many other outstanding attractions. One of them is the Missouri Botanical Garden, and incidentally, the Garden will be celebrating its Centennial in 1959. A tour of the Garden will be one of the highlights of the convention. A mammoth cactus and succulent plant show is being planned for the Floral Display House and it is intended to hold over all exhibits for the entire month of July. Commercial cactus growers throughout the country are invited to enter exhibits which will be viewed by thousands of visitors expected during the Centennial year. Cactus clubs, as well as individuals, are also invited to place exhibits. Won't all of you please cooperate? More about this later, or I invite your inquiries, if you are interested. Write me at the Missouri Botanical Garden, St. Louis 10, Mo.

St. Louis is the home of many excellent parks. Forest Park is the city's largest and most popular. It was the site of the 1904 World's Fair. The handsome Pavilion still stands on a hill commanding breathtaking vistas of lagoons, tree- and flower-clad hills, and the distant skyline. In the Park are located the Art Museum, where a big collection of Chinese bronzes, ceramics and paintings are exhibited; the Jefferson Memorial, a fine historical museum of Mound Builders, the early Midwest, and the fabulous Lindbergh trophies; the St. Louis Zoo, noted for its bear and mammal pits modeled after limestone bluffs along the Mississippi and the Chimpanzee and other animal shows that delight thousands with daily performances; the Muny Opera, a huge outdoor theater where some of the finest light operas and musical comedies are given over a 12-week season (June-July-August) with some of the most outstanding theatrical stars in leading parts. All seats are moderately priced but there is also a large free section. From time to time we shall attempt to give you hints on other attractions in the 1959 convention city.

The headquarters for the Convention will be the HOLIDAY INN, located on U. S. 66 at Long Road, only a mile from the Lambert St. Louis Municipal Airport. This is one of the newest and most modern motels in the area with all rooms airconditioned and supplied with a TV set. There is also a swimming pool operated for the convenience of its guests. Although there are other motels within the area, it is advisable that as many of the convention people plan to stay at Holiday Inn in order to share in all the privileges and conveniences offered to a group. The lodgings at Holiday Inn will average from $7.50 per person to $10.50 for two people in a room with one double bed; or $11.50 (1 or 2 persons to a room) with two double beds and $3.00 per person for a third or fourth guest. Children 12 years and under in the same room with adults free. Other rates will be available as soon as we complete our program. As usual, breakfast will be optional but luncheons and dinners will be required of all registrants in order to acquire the free use of the large banquet hall for our morning, afternoon and evening sessions. The tentative dates for the convention will be July 6, 7 and 8.

An attempt will be made to put on a very interesting and diverse program. As usual, the fun session will be one of the highlights and this will include the crowning of a new cactus king and queen, the initiation into the Ancient Order of Cactus Nuts, a colorful cactus ha contest and a cactus costume parade. Start putting your imaginative minds to work now and let them explode with fertile ideas for the most fantastic hats and costumes ever created. I'm sure we will have full coverage on the convention by local newspapers, television and radio stations. Suggestions, of course, are always welcome but please send them in promptly for evaluation. We will be needing attendance prizes in the form of books, plants or whatever you think most suitable. Right now, we are asking you to be seriously thinking about the convention and plan to be present to participate in all the activities. We will do our share to make this event the most talked about affair in the whole wide cactus world. Please cooperate! Please attend!

YOU HAVE A DATE

IN

ST. LOUIS IN JULY

GATES CACTUS, INC.

Wishes to assure the many friends of the late Howard E. Gates that they will receive the same courteous service as during his lifetime. Excellent nursery grown plants are available. Write for Free Illustrated Catalogue.

GATES CACTUS, INC.
2514 Hillside Ave., Norco, Calif.

COLLECTIONS OF MEXICAN CACTI

25 for $12.50 — 50 for $22.50
10 Specimen Mammillarias ..... $ 6.00
10 Show Plants, all different 12.00

Send import tags and cash with order.
Remit by check or money-order. No currency.
We pay postage and 25% export duty.
Satisfaction guaranteed

LA QUINTA—F. SCHMOLL
Cadereyta des Montes, Qro., Mexico

CACTUS SEED

—from Friedrich Ritter's expedition through South America. Comprising many beautiful, rare and new species of: Arequipa, Armatocereus, Browningia, Cephalocleistocactus, Cleistocactus, Copiapoa, Corryocactus, Eriosyce, Espostoa (mirabilis, ruficeps, superba), Eulychnia, Haageocereus, Horridocactus, Islaya, Matucana, Mila, Morawetzia, Neochilenia, Oroya, Parodia, Rodentiophila, Soehrensia, Trixanthocereus, etc. The most beautiful discovery of 1956 was Trixanthocereus senilis. The most beautiful novelty of 1957 was Espostoa mirabilis.

Descriptive and illustrated catalog sent on request.

H. WINTER
Frankfurt/M-Fechenheim — Germany

Supplier of cactus seed for 30 years. Purveyor to botanical gardens at home and abroad.

SPECIAL SALE—OPUNTIA CLAVARIOIDES
— SIXTY DAYS ONLY —
• Fine Rooted Plants •

Small—about 1" diameter ..... $ .65
Medium—about 2" diameter 1.25
Large—at least 3" diameter 2.00

Sent parcel post, prepaid.
This is just HALF our regular listed prices.
Free illustrated list offering over 100 other varieties.

JUDY'S CACTUS GARDEN
Dept. CS, Rt. 2, Box 216-A, Fallbrook, Calif.

CACTUS FOR SALE

Beautiful, healthy, blooming size plants from the Sun Drenched deserts of the great Southwest. Write for FREE descriptive Catalog. FREE plants given with each order.

DAVIS CACTUS GARDEN
1522 Jefferson Street, Kerrville, Texas

CACTUS AND OTHER SUCCULENT PLANTS—Roan

The sixth printing of this popular book has been revised and enlarged. It is written with great understanding of the questions that a novice asks. It contains the fundamental cultural information, soil and water requirements, potting, flowering, and propagation from seeds to cuttings and their livingroom and greenhouse adaptation. A new chapter on grafting has been added. Contains 100 pages, 156 fine illustrations, treatment of your plants month by month, and a complete index. Available from Abbey Garden Press $2.65 postpaid.

EPIPHYLLUM HANDBOOK by Scott E. Haselton

Epiphyllums or Orchid Cacti are deserving of first place because of their exotic beauty. The purpose of this book is to help those who have a newly acquired interest in Epiphyllums and their hybrids, to know their fascinating history, their culture and propagation, their differences and similarities, their names, and their possibilities. In other words, to help one to know and enjoy his plants to the fullest extent. We have made translations of most of the foreign publications so that the wealth of their experiences are available to us. For the scientific minded there are descriptions of the genera in the Epiphyllanae and the keys of Schumann, Berger, and Britton and Rose. For the beginner, the pictures alone will tell the complete story of these fascinating plants. Among the chapter headings are: The plant and flower—their parts and functions; Color, as applied to Orchid Cacti; Culture; How to make Epiphyllums flower; Pests and diseases; Propagation; True species and classification. 250 pages 5½ x 8 in., 170 photographs and a fine color plate. Printed on the best paper, bound in Buckram, $4.00

Abbey Garden Press, 132 W. Union St., Pasadena, Calif.
Please add Sales Tax on California orders

CRESTS WANTED

Would like to contact growers who have crested cacti for sale. Mrs. V. K. Nichols, 570 South Hughes, Fresno, California.

MINERALS NOW AVAILABLE FOR U. C. TYPE SOIL MIX (B)

Realizing that the required minerals may be somewhat difficult to secure, the I.S.I. has packaged the correct proportions of the minerals required in the U.C. Type Soil Mix (B). One package of these I.S.I. minerals is sufficient for use with two cubic feet or eighteen gallons of the mix. A sample of the correct type of sand recommended and instructions for preparing the soil mix will be included with each order.

1 — 12 oz. package for 2 cu. ft., or 18 gals. of Mix, prepaid $1.40
1 — 24 oz. package for 4 cu. ft., or 36 gals. of Mix, prepaid $2.40
1 — 36 oz. package for 6 cu. ft., or 54 gals. of Mix, prepaid $3.40

Send orders to International Succulent Institute, Inc.

J. W. Dodson, Secretary
921 Murchison Dr., Millbrae, California